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## Department of Agriculture

### OF SOUTH AUSTRALIA.

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CONTENTS.	PAGE.
POINTS FOR PRODUCERS .. .. .	938-942
INQUIRY DEPARTMENT.. .. .	943-946
KYRIOPOLITE EXPERIMENTAL FARM HARVEST REPORT, 1922-23 .. ..	947-963
PRELIMINARY REPORT ON CEREAL AND HAY CROPS, 1922-23 .. ..	964-965
ORCHARD NOTES FOR SOUTHERN DISTRICTS, JUNE, 1923 .. .. .	966
ADVISORY BOARD OF AGRICULTURE .. .. .	967-968
THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA—CONFERENCES OF RIVER	
MURRAY BRANCHES .. .. .	969-971
RIVER MURRAY HERD TESTING ASSOCIATION .. .. .	971
MOUNT GAMBIER AND DISTRICT HERD TESTING ASSOCIATION .. ..	972
THE AGRICULTURAL OUTLOOK .. .. .	972
DAIRY AND FARM PRODUCE MARKETS .. .. .	973
RAINFALL .. .. .	977-978
AGRICULTURAL BUREAU REPORTS .. .. .	979-1048

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G. F. JENKINS,  
*Minister of Agriculture.*

## POINTS FOR PRODUCERS.

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### **Fumigating Citrus for Red Scale.**

The attention of the Horticultural Branch of the Department of Agriculture was recently directed to the appearance of red scale in citrus trees in the Gawler district. At the request of a number of local commercial growers, the departmental fumigating plant was operated there during the week for the purpose of suppressing the pest. This plant was established 11 years ago, and has been in continuous work since. During the past year it has been engaged principally in the suburban areas and the Salisbury orangeries. Some 23,000 trees have been treated during the past 12 months, and it has been amply demonstrated that the use of hydro-cyanic acid gas is a satisfactory means of controlling an otherwise very destructive pest of the citrus family. In the course of the Fruitgrowers' Conference held in Melbourne recently, at which delegates from all States of the Commonwealth attended, the Horticultural Instructor (Mr. Geo. Quinn), by request, delivered an address dealing with the operations of the fumigating plant in South Australia. As a result of this officer's explanation of the system in operation in this State, growers and officials interested in the production of citrus fruits in Western Australia, New South Wales, and Queensland expressed their intentions of endeavoring to have established in their respective States a similar organisation and plant for the control of red scale.

### **Minnipa Experimental Farm.**

The report of the 1922-23 harvest at the Government Experimental Farm, Minnipa, has been made available by the Department of Agriculture. This particular farm is situated 158 miles north of Port Lincoln, on the Port Lincoln to Cape Thevenard line of railway. It is fairly centrally placed in relation to the whole of Eyre Peninsula, and it is the point from which departmental activities in agricultural matters on that vast stretch of arable land will proceed. The greater part of the farm will be arable when the natural growth is removed. It consists of soils varying from light-colored, light-textured sands, carrying broombush and porcupine, to heavy calcareous soils with a tendency to run together and set hard. The bulk of this land is between these two extremes, and consists of calcareous soils of medium texture, carrying, naturally, big mallees, and large bushes as an undergrowth. The land which has been used for cultivation on this farm has been grubbed, and so freed practically of all stumps and roots. At the present time there are approximately 1,200 acres of this land cleared, and additions are being made to this annually. The rainfall for the year was 10.07in., and the useful rain, namely, that which fell during the period April-November, 7.36in. Both of these figures are below the corresponding averages for the period 1915-22, namely, 15.34in. and 11.71in. The area cropped was 647.74 acres, made up of 139.42 acres fallowed land, 11.04 acres of grass land, 30 acres of stubble land, and 467.28 acres of new land. For hay 112.19 acres were cut for a return of 147 tons, the average yield per acre being

1 ton 6cwts. 23lbs. The area of wheat reaped for grain was 472.04 acres, which yielded 7,234bush. 36lbs., an average of 15bush. 20lbs. per acre. For the period 1916-22 the average annual wheat yield has been 19bush. 18lbs. Of oats, 25.04 acres were harvested for grain, yielding 398bush. 8lbs., an average of 15bush. 36lbs. per acre. This figure is considerably lower than the average for the last seven years, namely, 29bush. 7lbs.; 33.63 acres of new land were under barley, from which 582bush. 43lbs. were harvested. The average yield of barley for the year was 17bush. 16lbs., as compared with the average yield of 16bush. 12lbs. per acre during the past six years; 3.3 acres sown to rye returned 46bush. 7lbs., or an average of 13bush. 48lbs. per acre. The experimental work conducted included plots designed to determine the effect of different quantities of seed per acre, the effect of different manurial dressings, cultivation tests on new land, and a test with high-grade and low-grade superphosphate.

#### Market for Australian Products in the East.

As a result of recommendations made to the Government by the State Advisory Council of Science and Industry, and also by a joint conference of members of the Chamber of Commerce and Chamber of Manufactures, a special committee was appointed to deal with the question of extending South Australian export markets in the East. This committee recommended, amongst other things, that a Commercial Agent should be appointed for a period of 12 months, for the purpose of encouraging and developing trade between South Australia and Eastern countries. The Commissioner appointed (Mr. A. A. Markwell) during 1922 visited the main centres of Java, Sumatra (Straits Settlements), Federated Malay States, Burmah, and Calcutta. His report "on the possibilities of trade in the Netherland East Indies, British Malaya, Burmah, and Calcutta," has, under the authority of the Premier (Sir Henry Barwell, K.C.M.G., M.P.), been issued in Bulletin form. Copies can be secured from the Secretary, State Advisory Council of Science and Industry, Adelaide.

#### Experimental Plots.

Many of the problems associated with agriculture are such as can only be solved satisfactorily by local experiment. Of such a nature are the questions of the most profitable type and quantity of fertiliser to apply to crops in a given district; the most suitable varieties of the different cereals to grow; and the most desirable crop rotation to adopt. Experimental work designed to provide definite data on these matters is being conducted in different parts of the State by the Department of Agriculture, working in conjunction with the local Branches of the Agricultural Bureau. From the point of view of the Department, this has been found generally satisfactory, and that it meets with the approval of farmers is evidenced by the following letter which has recently been received by the Department of Agriculture from the Chairman (Mr. C. F. Jericho) and the Secretary (Mr. P. R. Parker) on behalf of the Butler Branch of the Agricultural Bureau:—"The members of the Branch desire to thank the Department of Agriculture for the good work they have done in this district by conducting the



experimental plots here. These, no doubt, have been a great benefit to most of the farmers, not only in our Branch, but in our neighboring Branches, some of whom take a keen interest in the plots. We hope that this work will bear a hundredfold fruit."

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**Agricultural Bureau Conference, New South Wales.**

Annually for a period of over 34 years a State Conference of representatives of Branches of the Agricultural Bureau of South Australia has been held in Adelaide. This year a similar gathering has been instituted by the New South Wales Department of Agriculture, which has arranged for a Conference to be held at the Hawkesbury Agricultural College during the period June 18th-22nd. The New South Wales Government has paid the Agricultural Bureau of South Australia the compliment of inviting the Chairman of the Advisory Board (Mr. W. S. Kelly) to attend and address this Conference. Mr. Kelly has accepted this invitation, and will shortly leave for Sydney for this purpose.

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**South Australian Barley in England.**

Through the courtesy of Messrs. Geo. Wills & Co., Ltd., the Department of Agriculture has been able to secure, per the manager of that firm's wool and produce department (Mr. D. Blyth), a report from barley merchants and maltsters in England on samples of 13 varieties of barley grown in South Australia. The barleys submitted for report included samples of grain grown from seed imported by the Department of Agriculture from the United Kingdom, France, and New Zealand last year, and also of the local Duckbill variety. The last-named, which is one of the most extensively grown barleys in South Australia, was reported on as being a good sample of Duckbill, but it was pointed out that this class of barley was not much in favor in England. "It is very much like the flat type of home-grown barley," the report stated. "For people who understand it, it gives quite fair results, but it is not popular in this country, and is only used by very few maltsters, and unless the yield per acre is particularly favorable to the Australian farmers, it will probably not pay to grow this class of grain on a large scale, because it will always sell in the United Kingdom at a discount when compared with barleys of the Chevalier type." In connection with this sample of Duckbill, one of the authorities to whom it was submitted remarked that it was quite exceptional to obtain that variety so well grown, and that the season's quality was better than that of previous years. All who examined the samples remarked on the damage which had been done to the barleys owing to bad threshing. An examination showed a large percentage not only of broken corns which could be extracted by machinery, but of corns which were wholly or partially skinned, though remaining unbroken. Those grains could not be removed by machinery because they were of the same shape, size, and weight as the unblemished corn. It was mentioned that the Australian harvest made barley late in arriving in the United Kingdom, and a great bulk of the shipments had to be held over until the autumn malting took place in that country. Freedom from weevil on arrival was highly essential.



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**Silver Cups for Pruning Competitions.**

As awards for the Championship Pruning Competitions, to be held under the auspices of River Murray Branches of the Agricultural Bureau at Moorook on June 28th, two silver cups have been presented by the South Australian Gas Company. The cups, which are to be known as the "Sulphate of Ammonia" Cups, are to be awarded to the persons gaining the highest number of points in the Fruit Tree Pruning and Vine Pruning Sections respectively. These competitions are open to prize winners in the district competitions to be held at Cadell on June 19th, Waikerie June 20th, Moorook June 21st, Renmark June 26th, and Berri June 27th.

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**Plant Importation Prohibited.**

The importation of grape vines into South Australia is prohibited by the regulations under the Vines, Fruit, and Vegetable Diseases Act, as also in the importation of all other forms of plant life, whether growing plants, hulbs, or tubers, unless accompanied by a declaration made by the grower to the effect that they were not grown within 50 yards of any grape vines, and that no phylloxera existed in the plantation from which they were taken. Infringement of these regulations renders a person liable to a fine of £100 or imprisonment for six months. Plants that are admitted under the regulation are, on arrival within the State, submitted to examination for certain diseases and pests which have been prescribed by proclamation. Numbered amongst these pests are different scale insects, codlin moth, and such diseases as Irish blight and scab, which attack potatoes. Infected plants are submitted to fumigation or other treatment before they are released to the consignees. These regulations have been in force for upwards of a quarter of a century, and the results of the work of the Horticultural Branch of the Department of Agriculture in administering the Act and regulations is to be seen in the absence from this State of some of the most serious orchard pests. Amongst these may be mentioned phylloxera of the grape vine, San Jose scale, wax scale, and all forms of fruit flies.

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**Agricultural Pamphlets.**

One of the activities of the Department of Agriculture which is of considerable service to producers is the publication of pamphlets on various agricultural subjects. These pamphlets have been written by the Expert Officers of the Department, and cover a wide field of information on many aspects of agriculture, including cereals, and other crops and their cultivation, horticulture, stock management, diseases and treatment, and similar matters. The demand for these pamphlets is not confined to South Australian farmers. Requests from all States of the Commonwealth, and also from many other countries, are from time to time received, a circumstance which indicates the widespread desire on the part of primary producers to avail themselves of a handy method of instruction on agricultural matters.

## INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Replies supplied by C. A. LOXTON, B.V.Sc., Government Veterinary Surgeon.]  
 "C. & Son," Morphet Vale, have wethers which have a swelling under the

jaw.

Reply—Your sheep are affected with lung worms and fluke, the latter being the forms which you describe as flat and leaflike. The swelling of the jaw, which you found on opening in a dead sheep to be a mass of jelly, is a common symptom of parasitic anaemia from worms. Curative treatment is not very satisfactory. Supply salt licks. Cooper's worm tablets are useful, partly from their general tonic action. They will require good feeding.

"D. L.," Mount Pleasant, seeks information regarding (1) ewes affected with stinkwort, and (2) filly with lump on the inside of the off fore leg.

Reply—(1) Stinkwort is commonly regarded as dangerous to pregnant ewes when it is in the flowering stage, but as the weed is now drying off you should not be having any trouble, unless it is from the mechanical effect of the dry plant. If you have any pasture which is comparatively free from stinkwort you should use it for the ewes. Try some laxative, such as molasses, which can be mixed with the feed if you are hand feeding. There is some doubt as to whether stinkwort is definitely toxic, and I should be glad if you will supply further particulars of your losses, number of deaths, whether pregnant, and if so, when due to lamb, symptoms, &c. (2) The hard swelling half-way between the knee and fetlock will be a splint. You can apply some absorbent, such as red blister, which is made as follows:—Mix thoroughly 1 dram of red iodide of mercury with 4oz. of lard. Clip the hair off the swelling. Rub the blister in well for 5mins. Tie the head up short for an hour or so after the application, so that he cannot reach it with his mouth. You will have sufficient blister for two applications, and can, if necessary, make a second application later. The immediate effect of the blister will be to increase the swelling.

"E. McC.," Colton, has aged mare which has had several attacks of colic.

Reply—The prevention of this disease depends largely upon regularity in feeding and regular work, and attention to the quantity and quality of feed. The effect of work as a cause of colic is important, and a hard day's work is often a cause of this trouble. Put her on a definite ration. In this regard you might study the Departmental Bulletin No. 102. Divide the ration into four feeds a day. Make it a rule to water before feeding. I think that your horses would be much benefited if you could feed chaffed hay instead of sheaves, except for the last feed at night, when they might receive hay. If you can obtain bran, use 3lbs. or 4lbs. daily. Treat the colic attacks with frequent, copious enemata of soapy water, and keep as a stock drench:—Turpentine, 1oz.; aromatic spirits of ammonia, 14ozs.; raw linseed oil, 1 pint.

Hon. Secretary, Agricultural Bureau, Lamerloo, reports foal which has an ulceration of the mouth and feet.

Reply—He is suffering from stomatitis. This disease is contagious, and the foal should be isolated. Dress the affected parts with a solution of permanganate of potash solution once a day. Apply with a swab. Give him soft food. Foot and mouth disease is unknown in Australia.

Hon. Secretary, Agricultural Bureau, Coomandook, asks name of a good work on veterinary science.

Reply—I advise you to obtain "Home Doctoring for Animals," by Harold Leeney, price 25s., obtainable from the Adelaide booksellers.

"S. S. M. S.," Rendelsham, has gelding, seven years old, which is falling away in condition, scouring, and has a depraved appetite.

Reply—He is suffering from a form of indigestion, for which the following treatment is advised. Diet him carefully. See that his forage is of good quality. Water him before feeding. Give the following powders in the feed:—Powdered nux vomica, 4oz.; bicarbonate of soda, 4ozs.; powdered gentian, 6ozs. (mix). Divide into 12 powders; one twice daily in his feed. Supply him with salt.

[Replies by F. MURRAY JONES, B.V.Sc., M.R.C.V.S., Assistant Government Veterinary Surgeon.]

Hon. Secretary, Blackheath Agricultural Bureau, Rockleigh, reports (1) sheep with dark colored film growing over the eyes, and (2) is there any cure for animals suffering from the effects of stinkwort poisoning?

Reply—(1) Apply an ointment of yellow oxide of mercury, half strength. Apply in the form of a small pellet placed inside the lids, and gently distribute over surface of eyes by manipulating the eyelids, once daily. (2) No absolute cure is known for animals affected from the effects of stinkwort. Treatment should be directed to giving purgatives of Epsom salts or castor oil and rectal injections. The best action is to remove from paddock on earliest sign of bad effects.

"P. J. A.," Coonalpyn, has two horses, heads hanging, heavy coughs, water and froth discharge from the nose, and breathing heavily and quickly.

Reply—I gather from your description that they are possibly suffering with strangles. I would advise you to steam their heads, using a nosebag, into the bottom of which has been placed a handful of straw. Pour into the straw 2ozs. of turpentine or eucalyptus; add 1 pint of boiling water. Steam animals for 15mins., care to be taken to avoid suffocation. Examine the jaws for swellings. If present, apply liniment until abscess be ready for opening. Administer the following mixture:—Extract of belladonna, 1oz.; chlorate of potash, 1oz.; oil of eucalyptus, 2ozs.; camphor, 1oz.; sufficient treacle to make up to 16ozs. One tablespoonful twice daily by smearing on the teeth and tongue. Keep affected animals isolated. Food to be laxative, such as bran or lucerne, if obtainable.

"H. F. S.," Hamley Bridge, reports five-year-old gelding with inflammation and swelling of eye.

Reply—It would appear that your horse is suffering from a malignant growth. Surgical operation is the only effective treatment. In the meantime I recommend the application of boracic acid solution. Keep the eye as clean as possible, and frequently dress to remove the discharge.

"W. J. G.," Kangarilla, asks remedy for mare that is short-winded.

Reply—I would advise you to feed food of good quality, but small in quantity, at frequent intervals. Avoid mouldy hay or damaged chaff. Small quantity of the best hay should be fed cut and damped. Water before feeding, but not after meals. Don't work immediately after food. Feed molasses with food, and give the following:—Fowler's solution of arsenic, 1 tablespoonful, in the feed twice daily. Occasionally give doses of linseed oil, 1 pint; turpentine, 1oz.

Hon. Secretary, Agricultural Bureau, Talia, asks (1) cure for sand in horses, and (2) cause of horses eating dirt.

Reply—(1) Administer 1 pint to 1½ pints of raw linseed oil, according to size of horses. Then give animal one flat teaspoonful of powdered nux vomica twice a day, putting on the tongue mixed with a little treacle for seven days; discontinue for two days, and then repeat. Injections of soapy water (enemas) by means of a piece of ¾ in. hose 6ft. long, with funnel at one end. Give good chaff, with pollard mixed with it. Prevention is the best cure, and methods must depend a good deal on local conditions, but attention to the following points will help. Do not allow horses to graze until grass, &c., is well clear of the ground. Feed chaff in nosebags or deep feed troughs, to prevent heaps falling on ground. Feed long hay off the ground. (2) Cause of horses eating dirt.—The eating of dirt is most probably the result of the dry season being experienced on Eyre

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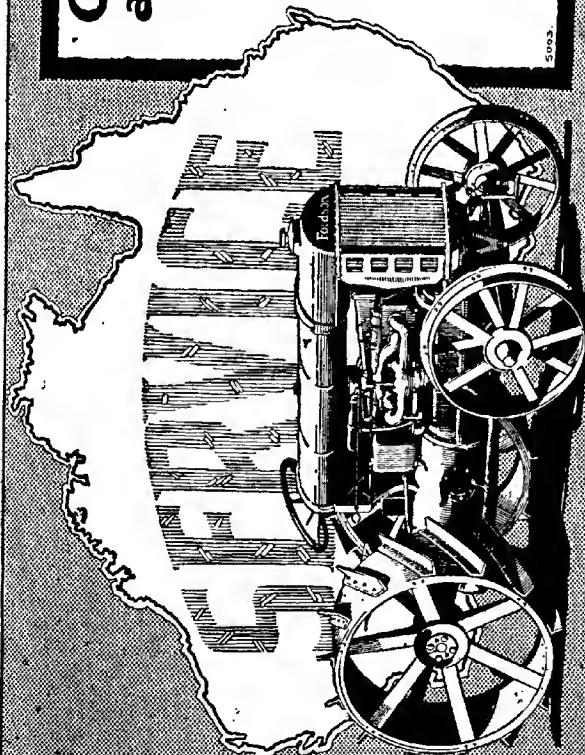
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Peninsula, the cause being that the grass and fodder generally they are eating is deficient in certain salts, such as phosphates. The giving of salt licks, i.e., sodium chloride, will not remedy the condition, and I would recommend giving them access to the following lick, which may supply their wants:—Slaked lime, 6lbs.; superphosphate, 6lbs.; common salt, 3lbs., mixed together, and place in stable boxes.

“A. J. A.” Karoonda, reports mare with leg swollen from foot up to hock. Rubs one leg against the other, finches when the leg is touched, but does not walk lame.

Reply—You do not say how long it has been swollen. The symptoms you describe rather point to the formation of an abscess, and you want to make a careful examination of the leg for signs of a scar from a wound or cracked heel, etc., and it may be necessary to clip hair from the leg. If an abscess is forming you will notice, on carefully feeling the leg, pain on applying pressure to a particular spot, and later the hair on the particular part will stand out and skin become purplish in color and glistening. The best treatment for the condition is to bathe the leg well with hot water, as hot as she will bear it, three times a day, and bandage leg loosely after bathing by applying a bandage of hessian 4in. wide by 9ft. long, if no proper bandages are available. If an abscess develops, as the result of the fomenting, wait till it points, and then open with a clean, sharp penknife, and syringe out with Condy's fluid solution (violet color). It is advisable to administer raw linseed oil as a drench, the dose varying with size of horse, viz.:—1 pint for medium-sized horse; 1½ pints for heavy draught.

### FODDER PLANTS FOR LIGHT RAINFALL DISTRICTS.

“So far we have not been able to discover many grasses, or for that matter many fodder plants of any kind, which will grow very well on sandy land with only a 13in. or 14in. average annual rainfall,” recently wrote Mr. W. J. Spafford (Superintendent of Experiments) to a correspondent who sought information on this question.

“I think you will get best grazing results by sowing lucerne at the rate of about 6lbs. to 10lbs. per acre, making sure that the seed is sown early in the autumn, so that it germinates while the land is still warm. This should last as really good pasture for about six years, if carefully grazed, and if dressed once a year with superphosphate at the rate of ½ cwt. or more per acre, given in the early spring at the same time as a good cultivation. Of the grasses, the only one likely to give really good results is Wimmera rye grass, sown at the rate of about 10lbs. per acre in the autumn. This grass could be sown in admixture with King Island Melilot at the rate of about 4lbs. of each kind of seed.

“If you wish to make absolutely permanent pasture of some of your sandy country, you cannot do better than plant it with Buffalo grass, which will give you a great bulk of very fair feed during the summer, particularly if you give it an annual dressing of superphosphate.”

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CURRIE STREET.

## KYBYBOLITE EXPERIMENTAL FARM.

**HARVEST REPORT, 1922-1923.**

[By L. J. Cook, Manager.]

This farm is situated in the hundred of Binnun, in the south-east of the State, and contains about 1,000 acres of land, immediately surrounding the old Kybybolite sheep station. The land is slightly undulating, and varies considerably in texture, color, and composition. The great bulk of the soils consist of comparatively heavy and cementy loams, containing a large proportion of ironstone rubble, over stiff clays of varying depths, and much lacking in the element lime, whilst there is a fair amount of heavy working "crabhole" land.

### THE SEASON, 1922.

The season was a good one, at least it was above the average, and it is somewhat significant that whilst the total rainfall for the year was slightly below the average, the returns of crops were slightly better



than usual, and the natural feed generally was much improved. This emphasises the fact that a comparatively light annual rainfall—18in. to 20in. well distributed—is more suitable to the district than heavy downfalls at certain periods of the year. Unfortunately, the rains recorded up till the end of March were very light, so that no early seeding preparations could be made. However, the rains of April, May, and early June were also on the light side, and this enabled fairly large areas to be prepared and sown to cereals. From May to November the falls were well distributed, approximately 2½in. being recorded each month.

Strong winds at harvest time caused considerable loss in one field of ber the falls were well distributed, approximately 2½in. being recorded the crops were particularly healthy.

The following table sets out in detail the rainfall at the farm since 1906:—

*Rainfall Distribution at Kybybolite, 1906-1922.*

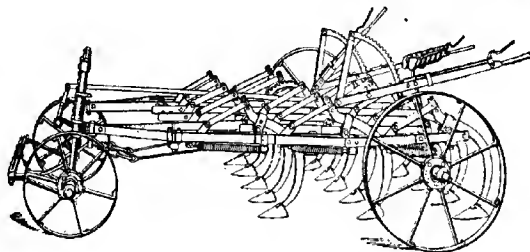
	Means, 1906- 1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.	Means, 1906- 1922.
	In.	In.	In.	In.	In.	In.	In.	In.	In.
January . . . . .	0.37	1.29	0.45	0.29	0.16	0.08	1.07	0.40	0.44
February . . . . .	0.93	0.28	2.81	0.23	2.35	0.07	0.88	0.17	0.95
March . . . . .	1.53	0.03	1.17	0.27	0.84	0.98	0.63	0.20	1.14
April . . . . .	1.50	2.07	0.74	1.38	0.06	0.38	0.62	1.30	1.27
May . . . . .	2.52	0.69	4.72	2.48	2.09	2.85	1.72	2.18	2.47
June . . . . .	3.14	3.56	1.33	3.52	1.53	4.31	2.16	2.68	2.97
July . . . . .	3.13	2.68	4.47	2.42	2.21	3.04	3.03	2.50	3.01
August . . . . .	2.67	2.94	2.69	2.76	1.08	4.29	3.55	2.83	2.75
September . . . . .	2.96	2.77	2.96	0.53	2.53	2.44	2.97	2.58	2.73
October . . . . .	1.80	2.20	2.78	2.70	1.64	0.98	1.24	2.72	1.90
November . . . . .	1.55	3.28	2.21	0.65	0.29	0.91	3.24	0.32	1.55
December . . . . .	1.21	1.74	0.36	1.09	0.82	0.54	1.38	2.81	1.23
Total rainfall . . .	23.31	23.53	26.69	18.32	15.60	20.87	22.49	20.69	22.43
Total "useful" rain (April-November) .	19.27	20.19	21.90	16.44	11.43	19.20	18.53	17.11	18.65

In what we know as our "cereal" districts the yield of cereal crops can usually be estimated fairly reliably on the amount of rain which falls between April and November. Even in such districts the yield is to a large extent dependent on the distribution of that rainfall over the period; but in the peculiar soil conditions of this farm, where the average annual rainfall is comparatively good, the success of these crops depends almost wholly on the distribution of this "useful" rain. In the next table the distribution of the April to November rainfall is set out, and it shows light seeding and winter rains, with comparatively heavy spring rains, whilst the November falls were light.

## **TRAEGER'S Stump-Jump Implements**

Ploughs, 4 to 10 Furrows.

Cultivators, 13 to 21 Tynes.



The illustration shows our 17-TYNE IDEAL LOCK SPRING CULTIVATOR. This implement has proved itself invaluable in hilly and stony land; it is easily adjustable, and will stand up to the roughest work. We also supply bridle draught cultivators, if required, and can deliver from stock. We also manufacture

**PLOUGHS,  
HARROWS,  
HAY TROLLIES.**

Our hay trollies are well known and require very little comment on our part, but we would like to stress the following points:—

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*Distribution of "Useful" Rain, Kybybolite, 1922.*

	1922.	Means, 1906-1922.
	In.	In.
Seeding rains (April-May) . . . . .	3.48	3.74
Winter rains (June-July) . . . . .	5.18	6.01
Spring rains (August-October) . . . . .	8.13	7.38
Early summer rains (November) . . . . .	0.32	1.55
Total "useful" rain . . . . .	17.11	18.68

## CROPS.

The bulk of the crops grown were the cereals for forage, hay, and grain, to be fed mainly to stock on the farm, together with other crops (principally leguminous and cruciferous) in rotation tests with cereals.

*Green Forage Crops.*—It has been usual of late years to sow fair areas of stubble land early in the season with a mixture of cereals, to provide stock feed during the winter months, at which time natural pastures are usually very poor. However, this year, through the ravages of caterpillars during the 1921 harvest, much oat grain was shed into the oat stubbles. This provided good self-sown crops in several fields. Consequently it was only necessary to sow three small fields with cereals for feeding off by stock.

A small plot in Field No. 11 was ploughed in October, 1921, and left bare through the summer; was cultivated early in April, and drilled with 60lbs. oats and 70lbs. barley and 1cwt. super per acre. This germinated well, and made good early growth, and we commenced cutting it for milch cows early in July. From less than half of the 2.3 acres, approximately 11 tons 16cwts. of green forage was cut. The plot was then left, and cut for hay, yielding over 2 tons per acre.

Field No. 11A had been under Wimmera rye grass for three years, the grass being grazed each year. It was ploughed early in May, cultivated and sown on the 22nd of that month with a mixture of rye, barley, and oats. This was used as a soiling crop for the milking herd after the plot in No. 11 became rather rank, and 34cwts. green feed was cut from 0.38 acres. The balance was put into the silo.

Field No. 3A (2.86 acres) produced nearly 6 tons ensilage per acre in 1921. It was cultivated with the disc on April 18th, and drilled with 100lbs. barley (Cape) and 100lbs. super per acre. The plot made strong early growth, and maintained a good, healthy color throughout June and July. It was used as a grazing crop, and milch cows were first put on it on June 1st. It provided 20 milkers with good feed for 12 days during that month. After that it comfortably kept three young pedigree bulls until the commencement of summer.

Field No. 3B (6.20 acres) produced approximately 5½ tons cereal ensilage per acre during 1921. It was cultivated with the disc on



The Annual Winter Fodder Crop Mixtures are perhaps better known as Four Purpose Crops, on account of the four purposes for which they can be used, as follows:—

1. They give Winter Fodder that can either be cut and fed or grazed.
2. As the cutting kills the weeds, these mixtures are valuable for cleansing the land.
3. In each of these mixtures a fair proportion of some legume is included, so that the crop can be ploughed in for green manure, thus adding humus to the soil.
4. These mixtures, even when not ploughed under, improve the soil as regards available nitrogen for succeeding crops.

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April 18th, and drilled with oats on April 24th for green feed, 80lbs. seed and 100lbs. super per acre being used. The bulk of the field was sown with Algerian variety; the balance was devoted to  $\frac{1}{2}$ -acre plots of Clydesdale, Early Burt, Sunrise, Kherson, and Smyrna varieties. All oats germinated well and made good early growth, but because of the self-sown growths in other fields the feed was not required until July. From July 11th until October 17th the field carried 5.35 sheep per acre, and was used as a lambing field for the English Leicester flock. Of the varieties, Early Burt made much the most early growth, but the plants suffered badly during the wet and cold weather. Altogether the Algerian, though later, gave the greatest bulk of feed.

*Crimson Clover.*—Field No. 6B in a six-course rotation came in for a grazing crop this year. On account of the hardness of the soil we were unable to disc the hay stubble until the middle of April. Towards the end of April crimson clover seed, at the rate of 10lbs. per acre, was broadcasted and rolled in. It germinated well, but made very little growth during the winter months. Plants developed well during the spring, producing stems up to 2ft. in length. The field was used for grazing milk cows during September, October, and November, but as we were not short of grazing, and the clover flowered and headed well, it was not eaten out, but allowed to ripen portion of its seed, in the hope that it would spread its seed for the next year. During the feeding period the crop carried the equivalent of 1.39 sheep per acre per annum, but of course the field was not depastured to its maximum grazing capacity.

*Lucerne.*—The field of this crop (No. 10), which was sown in 1918, and has never been irrigated, made useful growth during the spring and early summer. This year it was given a cultivation in the autumn, and dressed with 1cwt. bonedust per acre. During October and November, 6 tons 11cwt. green lucerne was cut and carted from the plot, and the field was grazed a good deal by the dairy herd. During the year it carried the equivalent of 1.97 sheep per acre, in addition to the green feed that was cut and carried off.

*Paspalum.*—The plants of this grass in Field No. 9 made more growth this summer than they have done previously. Though the plants live through the winters, and maintain good health through the summer months, the amount of feed produced so far has been insufficient to recommend the plant.

*Wimmera Rye Grass.*—A small plot of this grass was grown in Field No. 8. The field was ploughed in early May, rolled, and cultivated, and on the 20th of that month 1.09 acres were sown with 1bush. of the rye grass seed. The grass germinated well, and made a particularly good, thick, dense, even growth of about 3ft. in height. It lodged

badly late in the season, but it was cut with mower, cocked, and thrashed. From the 1.09 acres, 350lbs. of good rye grass seed was secured; this is equivalent to 321lbs. per acre. We had none of this grass under grazing test, but hope in the future to do so.

*Subterranean Clover.*—The  $\frac{1}{4}$ -acre plot of this clover sown in Field No. 16A in 1921 reseeded itself splendidly, and made a very dense mass of growth, completely covering every portion of the plot. The plot on which this clover was grown constituted portion of a larger field, hence we are unable to give grazing figures, but more work will be done with this promising clover in the future.

*Alsike Clover.*—The  $\frac{1}{4}$ -acre plot of this perennial clover sown in Field 16A in 1921 lived through the summer, and made much improved growth this year. The growth was not nearly as abundant as that of subterranean clover, but it completely covered its plot, and continued growth longer into the summer.

*Bokhara, or Sweet Clover,* was tried in Field No. 9A. The oat stubble was disced over, and 5lbs. of seed per acre rolled in to grow with the self-sown oats. A fair germination resulted, but no growth was made until late in the spring. The clover made very fair growth after other plants had finished, and kept green until late in the summer.

*Annual Summer Fodders* (without irrigation).—Field No. 3 was ploughed at the end of July to a depth of 6in., and cultivated and harrowed down during September and October. During the middle of October it was sown with the following varieties of summer crops, in rows 35in. apart, with 40lbs. super per acre:—

Crop.	Seed per Acre. lbs.
2 $\frac{1}{2}$ acres maize (Improved Yellow Dent) . . . . .	30
$\frac{1}{4}$ acre maize and cow peas (mixed) . . . . .	30
1 $\frac{1}{2}$ acres amber cane . . . . .	10
1 acre Sudan grass . . . . .	8
2 acres Japanese millet . . . . .	4
2 acres chow moellier . . . . .	2
2 acres mangels . . . . .	4
$\frac{1}{4}$ acre silver beet . . . . .	2
$\frac{1}{4}$ acre spinach . . . . .	1
$\frac{1}{4}$ acres sunflowers . . . . .	5

The fine seeds were sown on a rolled surface, and were covered by rolling. The larger seeds (maize and sunflowers) were harrowed after being drilled in. On November 6th-8th all plots in which the plants were visible were cultivated between the rows. Mangels, silver beet, and amber cane germinated poorly. All plots were cultivated again in December. Some very good patches of growth were noted on these plots, especially the maize and sunflowers, and they provided good green feed during January and February. The maize produced

approximately 2 tons 11cwts. green feed per acre, and the sunflowers 1 ton 17cwts. per acre, whilst the amber cane gave 16cwts., and the Sudan grass 12cwts. The other crops did not make sufficient growth for cutting, and were subsequently grazed, providing for 26 cows for 25 days during February and March.

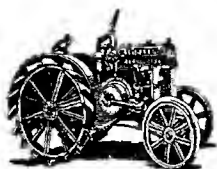
*Turnips.*—Field No. 9F (1.94 acres) was sown to turnips during October, 1921. A good growth resulted, and the tops were fed during December, 1921, and January, 1922, providing 1,089 sheep feed days per acre, or the equivalent of 2.98 sheep per acre per annum. As soon as sheep had slightly thinned out the bulbs, the animals were removed, and the balance of turnips were left for winter feeding. During June and July the crop was again grazed, and the turnips cleaned up. They provided another 1,049 sheep feed days, equal to 2.87 sheep per acre per annum, thereby making a total for the crop of 5.85 sheep per acre per annum. Turnips were again sown in the spring of 1922 in our three rotations in Fields Nos. 9E, 4c, and 6F. The first-named two were ploughed deeply in July, but we were unable to work ploughs in 6F until September. The fields were harrowed and cultivated several times to check weed growth and secure suitable tilth, and the seed was drilled on a rolled surface from October 17th to October 20th in rows 35in. apart. White Mammoth variety was used, and 4lbs. seed per acre was sown in 9E, the other two fields receiving 2lbs. per acre, all with 40lbs. 36-38 per cent. mineral super per acre. The seed was drilled very shallow, and covered by a light rolling. A good germination resulted in all fields, and cultivations were given between the rows, during November and December. The crops made good growth while the moisture lasted, and showed no signs of running to seed. Fields 9E and 6F have been left for winter feeding. In Field 4c a large growth of wireweed developed amongst the turnips, and it was therefore fed off by the spring lambs during February. These lambs had the run of oat stubble in Field 4b as well as the turnip crop, hence figures relating to turnip feeding are not available.

*Kale.*—Kale sown in Field 20A in 1921 produced a fair amount of feed during 1922. It was especially valuable during July and August, when it carried 300 sheep for three weeks. It also provided good spring feed. For the whole 12 months the 30 acres carried the equivalent of 2.11 sheep per acre. Field No. 20B was ploughed in the late winter, worked down, and sown by the end of October with 1½lbs. seed (thousand-headed variety) and 40lbs. bonedust per acre in drills 35in. apart. A good germination resulted over the bulk of the field, and it has withstood the dry summer very well.

*Ensilage Crops.*—Field No. 11 carried an ensilage and hay crop in 1921. It was ploughed again at the end of April, and sown with a

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mixture of 60lbs. Queen Fan wheat and 40lbs. Algerian oats, with 1cwt. super per acre. The crop germinated well, and made very fair early growth. Subsequently wet weather checked the growth, and sorrel developed thickly in the spring. Field No. 9d, in the six-course rotation, produced a 12bush. wheat crop in 1921. The stubble was burnt in April, and the field ploughed shallow. On May 22nd it was cultivated, and sown with a mixture of 60lbs. Algerian oats and 20lbs. black vetches, with 1cwt. super per acre. The crop made a thick growth of both oats and vetches, rather tall and rank in patches. Field No. 4b, in the four-course rotation, was worked over and sown with 60lbs. White Tuscan wheat and 1cwt. super. The wheat came away well with the self-sown oats left in the field through the ravages of caterpillars, and made a suitable crop for ensilage and hay. Portion was used to fill the silo; the balance made very nice hay.

The following table shows the returns of ensilage secured from the various fields:—

*Ensilage Yields, Kybybolite, 1922.*

Field.	Area. Acres.	Variety of Crop.	Total Yield.			Yield per Acre.		
			T.	C.	L.	T.	C.	L.
No. 11A . . .	1.29	Rye, barley, and oats	5	18	38	4	11	82
No. 11 . . .	5.49	Wheat and oats	20	15	70	3	15	84
No. 9d . . .	1.94	Oats and vetches	10	16	0	5	11	38
No. 4b . . .	3.23	Wheat and oats	23	18	105	7	8	31
Average .	11.95		61	8	101	5	2	94

The average return of just over 5 tons is satisfactory, considering that a fair amount of the poorer crops, as well as some of the heavier growths, were cut for the silo.

The following table shows the ensilage returns for the three seasons during which the silo has been in use:—

*Ensilage Returns, Kybybolite, 1920-1922.*

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.			Yield per Acre.		
	In.	In.		T.	C.	L.	T.	C.	L.
1920 . . . .	20.87	19.20	25.27	44	10	84	1	15	28
1921 . . . .	22.49	18.53	19.01	85	8	70	4	9	99
1922 . . . .	20.69	17.11	11.95	61	8	101	5	2	94
Average .	21.35	18.28	—	—	—	—	3	15	111

*Hay Crops.*—Haygrowing is important on a livestock farm such as this, but because during 1922 abundance of feed was available in the paddocks, practically no hand feeding of pasturing stock was necessary, hence we did not have to cut into our reserve stock of 60 tons of hay. We were therefore only called upon to cut and stack approximately 140 tons cereal hay. As usual, three types were grown, namely, wheat and oats separately and mixed together.

*Mixed Hay.*—Field No. 20 carried a cereal forage crop in 1921, and pastured the equivalent of over two sheep per acre for the year. Early in April, 1922, it was ploughed to a depth of 3in., and early in May it was cultivated down and sown with a mixture of 60lbs. Queen Fan wheat and 40lbs. Algerian oats, with 1cwt. super per acre. In parts the crop suffered from the wet in winter, but other parts were very good. Field No. 8 was left as pasture in 1921, was ploughed early in May, rolled and cultivated to suitable tilth, and by May 20th was sown with a mixture of grain similar to that sown in Field 20. Most of the field is of the heavy, crabhole nature. It produced a really good crop of hay. Field No. 5 was also left in pasture during 1921, and in 1922 was treated similarly to Field 8. Sorrel, however, secured a good hold in parts of this field, and greatly reduced the yield.

The following table shows the yields for mixed hay for the season:—

*Mixed Hay Yields, Kybybolite, 1922.*

Crop.	Field Grown.	Area. Acres.	Total Yield.			Yield per Acre.		
			T.	C.	L.	T.	C.	L.
Wheat and oats . . . . .	No. 8	4.85	13	0	98	2	13	88
Mixed cereals . . . . .	No. 11 plot	2.37	5	0	49	2	2	42
Wheat and oats . . . . .	No. 48	2.29	4	4	105	1	17	10
Wheat and oats . . . . .	No. 20	28.11	46	14	49	1	13	23
Wheat and oats . . . . .	No. 5	10.51	12	1	77	1	3	0
Wheat and oats, headlands	No. 17	3.17	2	0	105	0	12	102
Average . . . . .		51.33	83	3	35	1	12	45

*Oaten Hay.*—Only one field was sown exclusively for oaten hay, namely, No. 6A, in a six-course rotation. This field carried turnips in 1921; was skim ploughed during the middle of April, and on April 28th it was sown with varieties of oats at the rate of 60lbs. seed and 1cwt. super per acre. All varieties made comparatively good growth. The following table shows the returns received from each variety, together with the total oaten hay yield for the season:—

*Oaten Hay Yields, Kybybolite, 1922.*

Crop.	Field Grown.	Area. Acres.	Total Yield.			Yield per Acre.		
			T.	C.	L.	T.	C.	L.
Clydesdale . . . . .	No. 6A	0.89	2	5	28	2	10	94
Early Burt . . . . .	No. 6A	0.90	1	17	91	2	2	2
Kelsall's . . . . .	No. 6A	0.90	1	14	21	1	17	110
Sunrise . . . . .	No. 6A	0.88	1	13	0	1	17	56
Stark's . . . . .	No. 6A	0.90	1	13	42	1	17	9
Algerian . . . . .	No. 6A	3.03	5	10	91	1	16	64
Smyrna . . . . .	No. 6A	0.91	1	11	105	1	15	11
Kherson . . . . .	No. 6A	0.91	1	11	7	1	14	15
Total for Field No. 6A		9.32	17	17	49	1	18	39
Buakura headlands .	No. 12	2.95	1	1	91	0	7	44
Average:—Oaten hay		12.27	18	19	28	1	10	102

*Wheaten Hay.*—Field 6E, also in the six-course rotation, carried a pea crop in 1921; was ploughed early in May, and sown on May 19th with 60lbs. White Tuscan wheat and lewt. super per acre. This crop made a very good, healthy, and even growth, and its yield of over 2½ tons of first-class hay is highly satisfactory. Field 16C, under test of ground rock phosphates, also carried a pea crop in 1921: was ploughed early in May, and immediately sown with 80lbs. Queen Fan wheat per acre. As this field consists of some of our poorest soil, the average yield of 26cwts. is most satisfactory. Details of the differently manured plots will be given later in the report.

The following table shows the yields of wheaten hay for the season:—

*Wheaten Hay Yields, Kybybolite, 1922.*

Crop.	Field Grown.	Area. Acres.	Total Yield.			Yield per Acre.		
			T.	C.	L.	T.	C.	L.
White Tuscan . . .	No. 6E	8.87	22	16	28	2	11	19
Mixed headlands. . .	No. 20C	3.41	5	10	21	1	12	35
Queen Fan . . . . .	No. 16C	10.00	13	4	14	1	6	16
Average:—Wheaten hay		22.28	41	10	63	1	17	31

The next two tables set out the total hay cut and the yield per acre in the one case, and in the other the averages secured for the different types, for the period 1918-1922:—

*Hay Yields, Kybybolite, 1922.*

Kind.	Area. Acres.	Total Yield.			Yield per Acre.		
		T.	C.	L.	T.	C.	L.
Wheaten . . . . .	22.28	41	10	63	1	17	31
Mixed . . . . .	51.33	83	3	35	1	12	45
Oaten . . . . .	12.27	18	19	28	1	10	102
Farm average . . . . .	85.88	143	13	14	1	13	51

*Cereal Hay Crops, Kybybolite, 1918-1922.*

	Yield per Acre.								
	Oaten.			Mixed.			Wheaten.		
	T.	C.	L.	T.	C.	L.	T.	C.	L.
1918 . . . . .	1	4	97	0	16	106	1	5	30
1919 . . . . .	1	11	26	1	14	52	1	1	89
1920 . . . . .	0	17	92	0	17	4*	0	12	70
1921 . . . . .	1	6	0.	1	17	25	1	5	67
1922 . . . . .	1	10	102	1	12	45	1	17	31
Means . . . . .	1	6	19	1	7	69	1	4	57
								1	6
									55

\* As no mixture of hay was grown during 1920, the average hay yield for the season has been allowed for that year.

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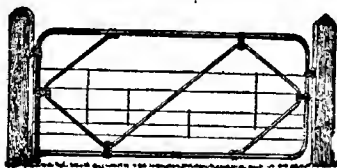


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The following table shows the returns of hay for the farm since 1910. The average yield for this season, 33cwts. per acre, exceeds the general average yield by 7cwts.

*Hay Returns, Kybybolite, 1910-1922.*

Year.	Total "Useful"		Area. Acres.	Total Yield.			Yield per Acre.		
	Rainfall. In.	Rainfall. In.		T.	C.	L.	T.	C.	L.
1910 . . . .	28.35	21.08	106.13	88	19	28	0	16	85
1911 . . . .	22.23	14.72	94.04	136	6	110	1	9	28
1912 . . . .	20.83	18.23	26.29	67	7	70	2	10	76
1913 . . . .	18.44	13.93	108.55	166	11	0	1	10	77
1914 . . . .	11.94	8.43	109.00	90	1	0	0	16	59
1915 . . . .	23.30	21.18	108.66	121	14	56	1	0	65
1916 . . . .	23.53	20.19	77.35	135	1	0	1	14	102
1917 . . . .	26.69	21.90	96.77	49	9	0	0	10	25
1918 . . . .	18.32	16.44	152.85	172	1	70	1	2	58
1919 . . . .	15.60	11.43	148.81	211	7	14	1	8	45
1920 . . . .	20.87	19.20	66.05	56	5	28	0	17	4
1921 . . . .	22.49	18.53	118.57	192	0	14	1	12	43
1922 . . . .	20.69	17.11	85.88	143	13	14	1	13	51
Means . . .	21.02	17.11	—	—	—	—	1	6	47

*Oat Crops.*—Field No. 20E carried a cereal forage crop in 1921, and pastured the equivalent of 1.85 sheep per acre for that year. It was ploughed in the middle of May, and almost immediately harrowed down, and sown with 60lbs. Algerian oats and 1cwt. super per acre. This field has been "ridge" ploughed for a number of years. The crop did not make heavy straw growth, but headed well, and returned the satisfactory yield of 41bush. Field 4b carried a turnip crop in the spring and summer of 1921; was skim ploughed in April, and sown at the end of that month with 67lbs. Algerian oats and 1cwt. super per acre. This crop made a very heavy straw growth, but did not head so well. Field No. 16 carried a crop of rye in 1921; was ploughed towards the end of April, and sown with 70lbs. Algerian oats and 1cwt. super per acre. This field was used to test the effect of feeding off oats at different periods. Field No. 12 was grazed in 1921, but on account of lack of early rains we were unable to plough this field until June, and seeding did not take place until the middle of that month. Seeding conditions were still good at the time, and the field was sown to varieties of oats. A good germination resulted, and the crop started well, but the winter checked growth, and sorrel developed thickly in parts of field. A quantity of grain was lost through heavy winds and the bad harvesting conditions experienced in early January. One variety, Kherson, was harvested before the rough weather delayed operations. All the others suffered considerable loss.

The following is a list of the varieties grown in various fields, and their yields:—

*Oat Variety Yields, Kybybolite, 1922.*

Variety.	Field Grown.	Area. Acres.	Total Yield.		Yield per Acre.	
			B.	L.	B.	L.
Algerian . . . . .	No. 20x	28.64	1,180	11	41	9
Algerian . . . . .	No. 4D	4.11	123	13	30	0
Kherson . . . . .	No. 12	6.48	72	7	11	6
Algerian . . . . .	No. 16	10.44	103	30	9	38
Calcutta . . . . .	No. 12	1.47	11	19	7	32
Early Burt . . . . .	No. 12	2.42	15	6	6	10
Scotch Grey . . . . .	No. 12	2.19	12	15	5	26
Algerian . . . . .	No. 12	0.76	3	1	3	39
Clydesdale . . . . .	No. 12	0.98	3	16	3	19
Smyna . . . . .	No. 12	6.19	21	16	3	18
Kelsall's . . . . .	No. 12	7.19	24	1	3	14
Algerian . . . . .	No. 17	5.12	14	38	2	37
Algerian Tartar . . . .	No. 12	1.11	3	9	2	36
Stark's . . . . .	No. 12	5.44	15	17	2	33
Goldfinder . . . . .	No. 12	1.08	2	20	2	12
Ruakura . . . . .	No. 12	1.99	4	14	2	7
Sunrise . . . . .	No. 12	0.79	0	38	1	8
Total . . . . .		86.40	1,611	31	—	—
Farm average. . .		—	—	—	18	26

Besides the above named, the following new oats were tried in single drills:—Ascot White, Champion Black Tartarian, Lachlan, Newmarket White, Scottish Chieftain, Stable King, Very Early Black Hybrid, White Horse, Fulghum. Of these, Lachlan, Fulghum, and Very Early Black Hybrid showed out well, and seem worth a trial in larger plots.

The average yield for the season of over 18½ bush. per acre is an improvement on our general average, and compares favorably with returns received since 1910, as set out in the following table:—

*Oat Returns, Kybybolite, 1910-1922.*

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.		Yield per Acre.	
	In.	In.		B.	L.	B.	L.
1910 . . . . .	28.35	21.08	77.00	1,001	0	13	0
1911 . . . . .	22.23	14.72	60.91	828	13	13	24
1912 . . . . .	20.83	18.23	103.00	3,450	36	33	20
1913 . . . . .	18.44	13.93	94.55	1,460	10	15	18
1914 . . . . .	11.94	8.43	6.00	61	3	10	7
1915 . . . . .	23.30	21.18	79.74	1,251	25	15	28
1916 . . . . .	23.53	20.19	61.94	1,388	39	22	17
1917 . . . . .	26.69	21.90	20.66	154	13	7	19
1918 . . . . .	18.32	16.14	36.93	554	25	15	1
1919 . . . . .	15.60	11.43	50.77	1,144	34	22	22
1920 . . . . .	20.87	19.20	36.29	613	1	16	35
1921 . . . . .	22.49	18.53	52.82	708	39	13	17
1922 . . . . .	20.69	17.11	86.40	1,611	31	18	26
Means . . . . .	21.02	17.11	—	—	—	16	30

**"FEEDING OFF" EXPERIMENT WITH GROWING OATS.**

Field No. 16 was divided into nine plots, each  $\frac{1}{2}$  acre in area. These were fed off at different periods during the winter, and then left to mature grain. The same sheep were used to feed off each plot, and every effort was made to ensure, as far as possible, uniform treatment. In the next table details are given of the dates and numbers of feedings to which the plots were subjected, together with the subsequent grain yields of the plots:—

*"Feeding Off" Algerian Oats, Kybybolite, 1922.*

No. of Plot.	No. of Feedings.	Date of Feedings.	Area. Acres.	Total Yield.		Yield per Acre.	
				B.	L.	B.	L.
No. 1 . . . . .	Nil	—	0.75	10	2	13	16
No. 2 . . . . .	1	July 13-17	0.75	8	25	11	24
No. 3 . . . . .	2	July 13-17	0.75	7	29	10	12
		August 11-13					
No. 4 . . . . .	3	July 13-17	0.75	4	18	5	37
		August 14-16					
		Sept. 8-11					
No. 5 . . . . .	2	July 13-17	0.75	5	22	7	16
		August 25-29					
No. 6 . . . . .	1	July 25-29	0.75	8	32	11	29
No. 7 . . . . .	1	August 4-8	0.75	8	31	11	28
No. 8 . . . . .	1	August 19-23	0.75	7	25	10	7
No. 9 . . . . .	1	Sept. 2-8	0.75	5	10	7	0

**BARLEY CROPS.**

Only two fields were sown to Cape Barley, and both of these to the one variety, Shorthead. Field No. 6c was under crimson clover, and was grazed during 1921. It was ploughed towards the end of July, and sown with 70lbs. seed and 1cwt. super per acre. A good germination resulted, but, as usual, the cockatoos thinned out the plants considerably. The crop eventually made a good 2ft. of growth, and headed comparatively well. After turnips had been cleaned up by the stock in Field No. 9f, this field was ploughed early in August, worked down, and sown similarly to No. 6c. Cockatoos were especially severe on this crop, and we had to redrill it on August 21st.

The following table shows the returns received from the two fields:—

*Barley Yields, Kybybolite, 1922.*

Variety.	Field Grown.	Area. Acres.	Total Yield.		Yield per Acre.	
			B.	L.	B.	L.
Shorthead . . . . .	No. 9f	1.94	42	35	22	1
Shorthead . . . . .	No. 6c	8.84	154	7	17	22
Total . . . . .		10.78	196	42	—	
Farm average. . .		—	—		18	13

The average return of 18bush. per acre is satisfactory, being considerably above the average yield of the crop over a period of years. The following table shows the barley returns received since 1910:—

*Barley Returns, Kybybolite, 1910-1922.*

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.		Yield per Acre.	
	In.	In.		B.	L.	B.	L.
1910 . . . .	23.35	21.08	45.39	299	29	6	30
1911 . . . .	22.23	14.72	58.76	552	16	9	20
1912 . . . .	20.83	18.23	50.00	1,500	0	30	0
1913 . . . .	18.44	13.93	35.00	527	0	15	3
1914 . . . .	11.94	8.43	3.02	37	48	12	29
1915 . . . .	23.30	21.18	50.28	789	39	15	35
1916 . . . .	23.53	20.19	43.24	273	37	6	17
1917 . . . .	26.69	21.90	66.31	304	41	4	30
1918 . . . .	18.32	16.44	35.08	266	48	7	31
1919 . . . .	15.60	11.43	39.71	655	1	16	25
1920 . . . .	20.87	19.20	55.77	474	7	8	25
1921 . . . .	22.49	18.53	54.56	339	22	6	11
1922 . . . .	20.69	17.11	10.78	196	42	18	13
Means . . .	21.02	17.11	—	—	—	12	5

RYE CROP.

Only four acres were sown to rye this year, and this on the stubbles of last year's summer crop of sunflowers in Field No. 17. The stubble was cultivated in March, in April, and again early in June. From the 4.09 acres, 24bush. 50lbs. grain was secured, or an average of 6bush. 4lbs. per acre. The following table shows all yields of rye grown at this farm since 1914. In compiling these figures, rye has been taken as weighing 60lbs. per bushel:—

*Rye Returns, Kybybolite, 1914-1922.*

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.		Yield per Acre.	
	In.	In.		B.	L.	B.	L.
1914 . . . .	11.94	8.43	6.00	90	16	15	3
1915 . . . .	23.20	21.18	7.27	43	14	6	38
1916 . . . .	23.53	20.19	8.20	35	3	4	16
1917 . . . .	26.69	21.90	—	Failure.			
1918 . . . .	18.32	16.44	4.62	52	0	11	15
1919 . . . .	15.60	11.43	7.23	37	7	5	8
1920 . . . .	20.87	19.20	14.71	47	48	3	15
1921 . . . .	22.49	18.53	10.44	74	44	7	9
1922 . . . .	20.69	17.11	4.09	24	50	6	4
Means . . .	20.37	17.16	—	—	—	6	32

(To be continued.)



## PRELIMINARY REPORT ON CEREAL AND HAY CROPS, 1922-23.

[By W. L. JOHNSTON, Government Statist.]

WHEAT.—28,784,767bush.; average per acre, 11.73.

BARLEY.—3,663,355bush.; average per acre, 16.56.

OATS.—1,687,288bush.; average per acre, 9.53.

For the purpose of ascertaining the final results of the recent harvest of the cereals and hay crops, forms of inquiry were distributed and collected through the post by the aid of the police officers in the agricultural districts of the State, and from the information thus obtained the estimate now issued has been computed.

At the time of the general collection of the previous year's crops a record was made of all farmers having sown areas for wheat, barley, and oats, and forms to all of them were posted. The response has been very satisfactory, for out of a total of 15,875, only 352 are still outstanding, and a reasonable allowance has been made in the estimate to cover those holdings.

Wheat for grain and hay was grown on about 14,100 farms, barley on 4,200, and oats for grain and hay on 8,500.

### RAINFALL—ADELAIDE OBSERVATORY.

Year.	January- March. In.	April- November. In.	December. In.	Total. In.	Wheat Average per Acre, Bush.
1920 . . .	1.70	22.90	2.10	26.70	15.80
1921 . . .	3.79	18.35	0.50	22.64	10.46
1922 . . .	2.40	17.83	2.97	23.20	11.73
Av. 10 years	2.63	17.37	1.31	21.31	10.73

### ACREAGE.

*Total Acreage.*—The combined area sown with wheat, barley, and oats for all purposes was 3,449,460 (3,254,746) acres, giving an increased acreage of 194,714. The reported total failures in the wheat areas covered 63,415 acres and 17,671 acres were fed off.

*Wheat.*—Sown, 2,830,591 (2,721,220) acres; increase, 109,371 acres. The area was distributed as follows:—Grain, 2,453,086 (2,384,012) acres; increase, 69,074 acres. Hay, 359,834 (325,769) acres; increase, 34,065 acres; fed off, 17,671 (11,439) acres.

*Barley.*—Sown, 225,978 (174,453) acres; increase, 51,525 acres. Of this area, 221,178 (170,887) acres are reported to have been reaped, the balance being for green fodder.

*Oats.*—Sown, 392,891 (359,073) acres; increase, 33,818 acres. Of this area, 176,970 (125,148) acres were reaped, and 207,521 (225,878) acres were cut for hay, the balance being either fed off or cut for green fodder.

## PRODUCTION.

*Wheat*.—28,784,767 (24,946,525) bush.; increase. 3,838,242bush. The yield averaged 11.73 (10.46) bush. per acre. The mean yield of the previous five seasons was 25,163,074bush., averaging 14.42bush. per acre.

*Barley*.—3,663,355 (3,278,787) bush.; increase. 384,568bush.; average per acre, 16.56 (19.19) bush. Of this quantity, 3,428,277 (2,981,004) bush. were returned as malting barley and the balance as feed.

*Oats*.—1,687,288 (1,297,646) bush.; averaging 9.53 (10.37) bush. per acre.

*Hay*.—Wheaten hay, 467,514 (423,995) tons; average, 1.30 tons per acre. Oaten hay, 212,529 (243,540) tons; total, 680,043 (667,535) tons. In addition there would be other kinds of hay totalling about 12,600 tons.

## OVERSEA EXPORTS AS PER CUSTOMS RECORDS.

*Barley*.—The exports of barley during the year 1921-22 totalled 1,279,622bush., value £259,702, and for the nine months, July-March, 1923, 1,721,722bush., £341,754.

*Wheat*.—From December 1st, 1922, to April 30th, 1923, the direct exports to oversea countries were:—Wheat, 10,256,008bush.; flour, 30,533 tons, the equivalent in wheat being 11,782,658bush. Since April 30th to date it is estimated that an additional 2,000,000bush. have been exported. These figures are exclusive of any interstate trading.

## EXPORTABLE SURPLUS OF WHEAT.

The great majority of farmers retain their full requirements for seed and a good quantity of inferior grain for feed purposes, probably aggregating 3,000,000bush. This, with the quantity required for other food requirements—estimated at 2,800,000bush.—allows for an exportable surplus of approximately 23,000,000bush.

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## ORCHARD NOTES FOR SOUTHERN DISTRICTS, JUNE, 1923.

[By C. H. BEAUMONT, Orchard Instructor and Inspector.]

Pruning will be in full swing in all orchards and vineyards. When pruning, leave any tree or vine which shows signs of unusual disease until last. The main object of pruning is, first, to form the young tree so that it will be strong, and thus able to carry a big load of fruit; so that it will be open and thus able to resist the wind and disease, and enable the orchardist to assist in controlling diseases by spraying; and secondly, to encourage the production of even crops of fruit, even in size and even in quality. Different varieties require different treatment; climatic conditions must be taken into consideration.

Planting should be completed as early as possible. Plant only strong trees or vines; weaklings are likely to become a nuisance later on. Do not put in any new weeds with the trees, and see that they are free from disease. Do not continue planting in the rain or if the soil becomes very wet; the soil should be friable.

Ploughing may be proceeded with; plough lightly near the trees and turn over deeply as you get away from them. Leave in the clod, and see that no water remains about the tree. Citrus trees in particular should be well drained, and where brown rot is feared a green crop or a mulch will be necessary under the tree and all low-hanging branches should be removed.

Where it is found necessary to fumigate citrus trees, see that there are no heavy weeds about, such as fat hen, fennel, or briars; these will all carry red scale, and will keep it alive long enough to reinfect the trees. If near the flower garden there are several shrubs which should be examined, and if necessary fumigated at the same time.

Olives will be ready for oilmaking. Crush your own olives and supply your district.

Growers of celery should be careful to rake up all the waste before ploughing, and get all the old roots after ploughing. Treat them thoroughly with quicklime, or put them on the heap of waste for burning, and do not on any account put them on the manure heap: this is the only way to check the rust. If growers of potatoes would follow the same instructions they would be saved much trouble with moth, scab, and eel worm.

## ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, May 9th, 1923, there being present the Minister of Agriculture (Hon. G. F. Jenkins, M.P., President), Capt. S. A. White (Vice-Chairman), Col. J. Rowell, Messrs. J. Wallace Sandford, C. J. Tuckwell, Professor Arthur J. Perkins, and the Secretary (Mr. Harold J. Finnis).

Apologies were received from Messrs. A. M. Dawkins, H. Wicks, P. Coleman, and T. H. Willims.

*Galvanized Iron for Water Catchment.*—Further consideration was given to a resolution from the Smoky Bay Branch of the Bureau, "That the Government be asked to supply settlers with galvanized iron under similar conditions to those under which it supplies fencing material under the provisions of the Fencing Act." It was decided to forward the matter on to the Minister with a request that it might be transmitted to the Lands Department for report.

*Rail Facilities on Peebinga Line.*—A request was received from the Nunkeri and Yurgo Branch that a better railway service be provided on the Peebinga line, and asking that an effort be made to have a train run to a fixed schedule, preferably on Tuesdays. The present service of one train a week was insufficient to meet district requirements throughout the year. It was decided to forward the matter on to the Minister for transmission to the Railways Commissioner.

*Experimental Plots.*—A letter of appreciation was received from the Butler Branch, thanking the Department for the benefits that were being derived from the experimental plots conducted by Mr. Jericho, under the supervision of the Department of Agriculture, in that district.

*Conference Resolutions.*—*Williamstown.*—The following resolutions were carried at the Conference of Lower Northern Branches, held at Williamstown:—(a) "That the Advisory Board be asked to recommend to the Ministry the need for the introduction of legislation to protect the horse-breeding industry in South Australia." It was decided to forward the resolution on to the Minister. (b) "That the Turretfield Farm be reopened as a pure seed-wheat farm." The Board was of the opinion that the present system should be carried on for a period of six years, in order to cover two rotation courses. (c) "That more stringent measures be taken to deal with neglected orchards and vineyards." The Board decided to seek a report from the Horticultural Instructor (Mr. Geo. Quinn) on this matter. (d) "That this Conference strongly recommends the Advisory Board to urge the School of Mines to arrange for a rural household science course for women on the lines of such courses at the Perth University." The Secretary was instructed to secure particulars from the Perth University. (e) "That the Advisory Board be asked to ascertain the reason

for the difference in the price of wheat in South Australia and New South Wales, and that the information be published in the *Journal of Agriculture*." It was decided to seek information from the Chamber of Commerce. (f) "That the Advisory Board be asked to take steps to impress on the Government the need for enforcing the Noxious Weeds Act." The Secretary was instructed to table at the next meeting the report drawn up by the Advisory Board during 1911. *South-Eastern Conference*—(a) "That the Government be asked to offer a bonus for some effective means of exterminating the rabbit pest." (b) "That district councils have power to deal with rabbits on Crown lands the same as on private holdings." Both these resolutions were received by the Board.

*Pruning Competitions*.—The forthcoming pruning competitions on the River Murray were creating a great deal of interest, and a request was received that permission be given to Mr. C. G. Savage (Manager, Berri Experimental Orchard) to act as judge. The Board decided to recommend that Mr. Savage be asked to judge the competitions.

*Representation of Forest Department on Board*.—On the motion of Mr. F. Coleman it was decided to suggest to the Hon. Minister of Agriculture that an officer of the Forestry Department might be appointed a member of the board.

The Secretary reported that the Conference of River Murray Branches would be held at Renmark on May 22nd and May 23rd.

*New Members*.—The following names were added to the rolls of existing Branches:—Meadows—M. Brookman; Beetaloo Valley—W. D. Simmons, F. R. Simmons; Penola— — Bethune; Collie—D. Watson, J. Simmonds; Strathalbyn—H. Walter, — Moffit; Lipson—A. G. Baillie; Halidon—G. Peters; Williamstown—R. Schmid, W. Daley; Lyndoch—J. H. McDonald, R. F. Kies; Shoal Bay—S. E. Bell, G. H. Patterson; Nunkeri and Yurgo—L. Ward, A. G. Nurse, F. Ling, A. O. Richards; Virginia—A. How; Netherton, W. Donningburg; Mount Barker—D. Kerr, Les. Scarborough; Moonta—R. C. Kitto, D. Kitto, F. Trenner, jun.; Minnipa—Geo. Williams, A. G. Braham, F. Cook; Booleroo Centre—P. Cunningham; Maramba—Thos. Gould; Yacka—J. Newman, S. Tilbrook, E. Billingham, R. Goss, B. G. Hancocks, J. Nykiel; Parilla Well—R. Leak; Monarto South—C. Pacch; Willowie—T. Davis; Rockwood—L. Tucker, H. Tucker; Balhannah—W. H. Kleeman, J. Atkinson, J. McNamara; Laura—W. J. Edwards, W. F. A. Reichett; Mallala—W. J. Taylor; Pinnaroo—C. Klein; Strathalbyn—H. D. Walters; Lenswood and Forest Range—H. Plummer, F. W. Green, L. Green; Wynarka—Wm. Hilliar; Saddleworth—P. Manning, C. Fraser; Crystal Brook—L. M. Gleeson, A. G. Head, M. Weston, jun., K. Growden.

## THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

### CONFERENCE OF RIVER MURRAY BRANCHES.

About 100 delegates, representing the Renmark, Berri, Waikerie, Myponga, Winkie, New Residence, Moorook, Loxton, Pyap, Glossop, Block E, Lone Gum and Monash, and Barmera Branches of the Agricultural Bureau attended the Annual Conference of River Murray Branches, held at Renmark on Tuesday and Wednesday, May 29th and 30th. In addition to Branch representatives, the Director of Agriculture (Professor A. J. Perkins), Mr. H. Wicks (Member of the Advisory Board), the Deputy Horticultural Instructor (Mr. C. G. Savage), and the Secretary Advisory Board (Mr. H. J. Finnis), attended on behalf of the Department of Agriculture. In addition, the Mildura Vinegrowers Protection Board was represented by the Chairman (Mr. Howard Paul), Mr. A. V. Lyon, B.Sc. (Agric.), Mr. James Lockhead, Mr. D. Gordon, and Mr. A. R. Smart. The President of the Renmark Branch (Mr. W. R. Woodham) occupied the chair. In his address of welcome he expressed the pleasure of the Renmark Branch in entertaining representatives of other Branches, officers of the Department of Agriculture, and especially the visitors from Victoria. The Director of Agriculture (Professor A. J. Perkins), in his opening address, referred to the importance of this gathering from the point of view of the fruit-growing industry. On the general question of irrigation, he mentioned that the point that impressed him most was the manner in which desert wastes had been reclaimed. Whilst much had been accomplished, it was impossible for anyone to forecast what the ultimate development of the River irrigation settlements would be. The marketing of produce was at present a matter that was presenting some difficulty to them. There would always be serious difficulty when local consumption was below production, but both the State and the Federal Governments were alive to the position, and were doing what they could to relieve it, and with the co-operation of the growers, he thought they would ultimately realise satisfactory results. The markets they could look to were within the Empire and the East. It was a question whether they could compete in countries where the standard of living was lower than ours, but the cost of production was not necessarily in proportion to the cost of labor. Cheap labor often meant dear production on account of its inefficiency.

#### SEEPAGE AND DRAINAGE.

There would also be difficulties with seepage and drainage as time went on. Concerted action was necessary where drainage was concerned. There was a likelihood of individual action being faulty, and one man might be a danger to his neighbors. There were also technical problems to overcome, and a layman might make mistakes in dealing with them. The results of the drainage system on the Berri Experimental Orchard had been very satisfactory up till the present.

Between the months of November and March inclusive about 50 per cent. of the drains were working, and 145,000 galls. of water passed through them. During an ordinary season the quantity would be greater. Samples of the water had been analysed at intervals, and the analyses showed that  $3\frac{3}{4}$  tons of soluble salts had been removed from that portion of the orchard. Assuming there was an average of 3 ft. of soil above the clay, he calculated there was about 10 tons of soluble salts per foot per acre, a total of 30 tons per acre, or approximately 300 tons on the 10 acres to be drained. He hoped later to flood the ground to take out a greater amount of the salt. The pruning competitions that were held on the Murray annually were of considerable value, and he hoped that similar contests in other lines would be instituted. Mr. H. Wicks, who also spoke, eulogised the work being done by the Agricultural Bureau throughout the State.

#### PAPERS AND DISCUSSIONS.

Mr. H. F. Paul (Chairman Mildura Vinegrowers Protection Board) then contributed a paper entitled "The Aims and Objects of the Merbein Experimental Farm." A paper entitled "Dehydration" was read on behalf of Col. W. Dollman, which was followed by an instructive discussion. Mr. C. G. Savage (Manager Berri Experimental Orchard) stated that much that was claimed for dehydrated fruit had yet to be proved, but he thought that that method would be a help in controlling the spread of the dried fruit moth. It also prevented sand and dust from gaining access to the fruit. Mr. A. V. Lyon, B.Sc. (Agric.), stated that the dehydrator could be used for reconditioning the fruit, but unless specially packed the fruit would not be immune from the moth. The afternoon session was opened by a paper from Mr. F. J. Foord entitled "District Resident Veterinary Surgeons," after which Mr. F. H. Basey (Renmark) moved—"That this Conference affirms the advisability of stationing veterinary surgeons in the country districts." Professor Arthur J. Perkins then delivered an address entitled "Diseases of Vines," during the course of which he dealt specifically with three diseases caused by fungus parasites, namely, oidium, anthracnose, and downy mildew. Mr. C. G. Savage opened the evening session with a paper entitled "Resume of the Experimental Work conducted at the Berri Experimental Orchard." Mr. A. V. Lyon, B.Sc. (Agric.), also contributed a paper entitled "Factors Affecting the Yield in a Vineyard." The Wednesday morning session was commenced by a paper, "Moths Injurious to Dried Fruits," by Mr. E. J. Connelly (Renmark). Mr. C. Goode then delivered an address entitled "Cotton Growing under Irrigation." He stated that the fruit prospects were far from encouraging, and thought that cotton growing was well worthy of consideration. Details were given of satisfactory results which had so far attended experimental plots under irrigation in South Australia. Mr. H. S. Taylor (Renmark) moved—"That this Conference, in view of the desirableness of encouraging diversity of production in the irrigation areas and of the great possibilities of cotton as a crop for the Murray Valley, and in view also of the evident necessity for thorough experiment respecting the varieties of cotton and methods of cultivation

best suited to our local conditions, and other factors incidental to the successful production of cotton, urges the Government to take such diversified experiments in a manner and on a scale befitting their importance." The motion was carried. The following resolutions were also carried—(1) "That the Government be asked to push forward with the drainage scheme in the Lone Gum and Monash area." (2) "That this Conference is of the opinion that before any area of land is opened for irrigation a thorough soil survey should be made to determine, first, whether the soil is suitable for cultivation; if so, what class or classes of products, especially if the soil contains a dangerous proportion of salt or is liable to seepage; secondly, if such salinity or seepage can be overcome by drainage and at what cost, and that no land be brought under irrigation where cost of drainage is likely to exceed the value of the land so drained." (3) "That the Government be asked to appoint a travelling citriculturist and viticulturist for the Murray districts, and that the Government be asked to appoint an instructor to soldier settlers." (4) "That this Conference urges the Government to consider the locking of the Murray an urgent necessity." (5) "That the drain pipe machinery now in South Australia be put to practical use." It was decided that the next Conference take place at Murray Bridge during May, 1924.

## RIVER MURRAY HERD TESTING ASSOCIATION.

### RESULTS OF BUTTERFAT TESTS FOR APRIL, 1923.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during April.	Per Cow during April.	Per Cow October to April.	Per Herd during April.	Per Cow during April.	Per Cow October to April.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1C	31	22-10	17473	563-64	3262-43	682-21	22-01	212-15
1E	23	21-07	12874	559-74	4119-46	582-78	25-34	178-74
1J	22-33	20-10	10249-5	459-00	3722-16	519-80	23-28	166-94
1L	17-20	12-73	7835-5	455-55	3978-97	381-71	22-19	182-16
1M	22	19-03	11462-5	521-02	3706-43	583-88	26-54	181-05
1R	13	9-90	5103	392-54	3507-35	294-49	22-65	174-62
1T	12-17	9-73	6547	537-96	3848-46	361-13	29-67	191-31
1Y	15-60	15-60	12459	798-65	4521-21	533-94	34-23	191-70
1W	15-67	14-30	8936	570-26	4449-08	342-13	21-83	166-43
1X	19	15-83	7762	408-53	4069-97	353-36	18-60	183-94
1Z	24-63	20-50	12347	501-29	4375-92	546-84	22-20	190-43
1A	18-70	16-13	9227-5	493-45	3620-29	426-88	22-83	164-51
1AA	6	6	4170	695-00	4474-58	175-03	29-17	195-11
1BB	8-27	7-87	5687-5	687-73	3355-53	232-06	28-06	145-21
1CC	9-87	5-40	3105	314-58	2064-28	131-14	13-29	87-68
1V	16	16	9375	585-94	1947-39	426-17	26-64	83-73
Means	17-15	14-52	9038-34	526-94	4205-92	410-85	23-95	146-24



## MT. GAMBIER AND DISTRICT HERD TESTING ASSOCIATION.

## RESULTS OF BUTTERFAT TESTS FOR APRIL, 1923.

Herd	Average No. of Cows in Herd	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during April.	Per Cow during April.	Per Cow August to April.	Per Herd during April.	Per Cow during April.	Per Cow August to April.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
2/A	21	12.73	2612.5	124.40	4533.59	122.76	5.85	194.90
2/B	7	4.60	2026	289.43	7418.72	87.43	12.49	310.60
2/C	20.80	12.23	5457.5	262.38	5342.42	205.95	9.90	215.78
2/D	13.10	5.86	2877	219.62	4048.81	114.71	8.76	161.87
2/E	11	9.50	2660	241.82	5731.54	130.22	11.84	253.88
2/F	20	8.07	2905.5	145.28	4636.49	129.92	6.50	188.86
2/G	3	3	1080	360.00	7194.50	56.64	18.88	327.87
2/H	27	19.77	4089	151.44	4700.65	199.39	7.38	195.89
2/I	14	11.83	1831	130.79	5073.18	87.02	6.22	299.05
2/J	12	11.87	3840	320.00	6822.95	194.44	16.20	290.11
2/K	20.87	19.40	8108.5	394.19	5455.97	379.14	18.43	229.92
2/L	31.90	24.10	5640	176.80	4080.48	309.09	9.69	186.11
2/M	12	10	1500	125.00	3676.52	69.13	5.76	148.88
2/N	42	22.83	8048	191.62	3462.08	347.84	8.28	142.45
2/O	33	15.23	4241	128.52	4138.25	178.26	5.40	170.63
2/P	15.83	14.10	7806	493.11	7422.77	389.64	24.61	323.49
Means	19.01	12.82	4045.13	212.76	4725.36	187.80	9.87	198.54

## THE AGRICULTURAL OUTLOOK.

## REPORTS FOR THE MONTH OF MAY.

The following reports on the general agricultural condition and outlook of the areas represented by the Government Experimental Farms mentioned below have been prepared by the respective Managers:—

**Booborowie.**—Weather—The weather for May has been good, 274 points of rain having been registered up to the time of writing. Crops are germinating nicely after the recent beneficial rains. Natural Feed—The country is now quite green, but there will be no feed for some time to come. Stock—In good condition where hand fed, otherwise poor. Pests—Nothing worth mentioning at present. Miscellaneous—Farmers are now busily engaged in seeding operations.

**Kybybolite.**—Weather—The long dry spell broke on the 5th instant, and rain has fallen almost every day since, registering a total of over 4½ in. for the month. Some strong, heavy gales were noted, and some rather cold snaps. Crops—The teams have been busy sowing since the rain, but towards the close of the month the land became rather too wet for good seeding. However, the crops are germinating quickly, and given mild conditions during June, they will no doubt make sufficient root growth to withstand the winter's cold. Maize and sorghums under irrigation have ripened grain well. Berseem under irrigation has made good growth. Natural feed has germinated well, particularly the cluster clover. Stock have required a good deal of handfeeding during the month.

**Veitch.**—Weather—142 points of rain have fallen at Veitch during the month. The rainfall for the year has been 149 points (five months). A few days of heavy winds have been experienced. Crops generally are germinating well, but require a good soaking rain. Drift sand is cutting the crops rather badly this year. Natural feed is growing well, but is rather short for big stock yet. Stock are all in healthy condition. Pests—Rabbits are still thick enough to do damage in the district.

## DAIRY AND FARM PRODUCE MARKETS

A. W. Sandford & Co., Limited, reported on June 1st, 1923:—

**BUTTER.**—The early rains experienced in May were welcomed by all those interested in the dairying industry, and the showers that have continued throughout will have a beneficial effect on the growth of the herbage, so that prospects at the present time look very favorable for the coming season. Already local supplies of butter have shown an increase, but South Australia has yet a leeway to make up before she is self-supporting. Imported butter continues to come along weekly, but in lessening quantities. The trade generally appreciates the new-made against the imported article. Values have been very stationary throughout the month, until the last auction, when rates came back 1d. per lb. Choice factory and creamery fresh butter in bulk sold at 2s. 1½d. per lb.; best separators and dairies, 1s. 10d. to 1s. 11½d.; fair quality, 1s. 7d. to 1s. 8d.; store and collectors', 1s. 2½d. to 1s. 5d.

**EGGS.**—Supplies have shown the usual seasonable shrinkage, and difficulty has been experienced in supplying the demand. Competition has been very keen, and prices have firmed up considerably. Present rates ruling are:—Fresh hen, 2s. 1d. per dozen; duck, 2s. 2d. The high prices have caused holders of refrigerated and pickled sorts to place consignments on the market.

**CHEESE.**—Values have shown slight fluctuations, owing to the lower rates ruling in Queensland, and they have offered to Western Australia at prices under South Australian quotations. However, local market has been good, and at the end of the month the range was 12½d. to 13½d. for large to loaf.

**HONEY.**—Prime liquid samples are becoming scarce, and values for these have firmed, present prices being 4d. to 4½d., whilst good candied sorts have been selling at 3½d. There is still an absence of inquiry for second grades, which have been offering at 2d. to 2½d. Beeswax, 1s. 4d. to 1s. 5d. for clear samples.

**ALMONDS.**—Heavy quantities have come to hand, and unfortunately Sicilian almonds have been offering at reduced prices, which has had the effect of lowering rates here. Brandis selling at 9d. to 9½d.; mixed softshells, 8d. to 8½d.; hardshells, 3½d. to 4d.; kernels, 1s. 5d. Walnuts, 11d.

**BACON.**—Both local and export buyers have been operating freely, and nice business has been ruling, with rates practically unaltered. Best factory cured sides selling at 12½d. to 13d.; hams, 1s. 4d. to 1s. 5d.; middles, 1s. 2d.; rolls, 12½d. Lard, Hutton's, in packets, 9d., in bulk 8d.

**LIVE POULTRY.**—Although heavy forwardings have come along during the month, the pleasing feature is that supplies do not affect values. Rates have kept up remarkably well, and excellent figures have been secured for birds fit to kill. As the demand is likely to continue good, we can strongly recommend consignments. Crates obtainable on application. The following prices ruled at our last auction:—Prime roosters, 5s. to 6s. 6d. each; nice-condition cockerels, 3s. to 4s. 9d.; poor-condition cockerels, 2s. to 2s. 6d.; plump hens, 3s. 6d. to 5s.; medium hens, 2s. 6d. to 3s. 3d.; light hens, 2s. to 2s. 5d.; some pens of weedy sorts lower; geese, 5s. to 6s.; ducks, good condition, 4s. 6d. to 6s. 4d.; ducks, fair condition, 3s. to 4s. 3d.; turkeys, good to prime condition, 1s. to 1s. 8d. per lb. live weight; turkeys, fair condition, 9d. to 11½d.; fattening sorts lower; pigeons, 9½d. each.

**POTATOES.**—There is little to report in connection with these, values maintaining fairly evenly the quotations made in our last report. The bulk of supplies are now coming from Victoria, and the values at the close of the month were from £13 10s. to £15 per ton on trucks, Mile End, for best sorts of Victorians; locals, £12 to £13 10s. per ton, on trucks.

**ONIONS.**—Market for these also has been somewhat lifeless, and quotations are unaltered, at from 7s. to 8s. per cwt., on trucks, Mile End.

**IMPORTS AND EXPORTS OF FRUIT, PLANTS, Etc., MARCH, 1923.****IMPORTS.***Interstate.*

Apples (bushels) . . . . .	9,463
Bananas (bushels) . . . . .	6,742
Grapes (bushels) . . . . .	2
Pears (bushels) . . . . .	176
Pineapples (bushels) . . . . .	1,032
Plums (bushels) . . . . .	2
Tomatoes (bushels) . . . . .	1
Peanuts (packages) . . . . .	1
Onions (bags) . . . . .	2,854
Potatoes (bags) . . . . .	17,125
Bulbs (packages) . . . . .	69
Plants (packages) . . . . .	22
Seeds (packages) . . . . .	74
Wine casks, empty (number) . . . . .	3,467

Fumigated—14 casks.

Rejected—15bush. bananas, 2bush. grapes, 1bush. pears, 41bush. pineapples, 1 second-hand case.

*Overseas.*

## Federal Quarantine Act.

5,423 packages seeds, &amp;c.

**EXPORTS.**

## Federal Commerce Act.

Eight thousand four hundred and thirty-eight packages fresh fruit, 71 packages jam, 75 packages preserved fruit, 34,550 packages dried fruit, and 3 packages plants were exported to oversea markets. These were consigned as follows:—

*London.*

Dried fruit (packages) . . . . .	33,526
Apples (packages) . . . . .	8,080
Pears (packages) . . . . .	284
Grapes (packages) . . . . .	62
Sauce (packages) . . . . .	5
Jam (packages) . . . . .	70
Preserved fruit (packages) . . . . .	70

*South Africa.*

Dried fruit (packages) . . . . .	915
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*New Zealand.*

Grapes (packages) . . . . .	12
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*India and East.*

Dried fruit (packages) . . . . .	109
Jam (packages) . . . . .	1
Plants (packages) . . . . .	3

**IMPORTS AND EXPORTS OF FRUIT, PLANTS, Etc., APRIL, 1923.****IMPORTS.***Interstate.*

Apples (bushels) . . . . .	18,015
Bananas (bushels) . . . . .	6,038
Grapes (bushels) . . . . .	3
Passion fruit (bushels) . . . . .	155
Peaches (bushels) . . . . .	1
Pears (bushels) . . . . .	75
Pineapples (bushels) . . . . .	321
Cabbages (packages) . . . . .	1
Cauliflowers (packages) . . . . .	1
Onions (bags) . . . . .	1,479
Potatoes (bags) . . . . .	17,644
Bulbs (packages) . . . . .	27
Plants (packages) . . . . .	13
Seeds (packages) . . . . .	47
Trees (packages) . . . . .	1
Wine casks, empty (number) . . . . .	1,632
Fumigated—23 wine casks, 1 package trees.	
Rejected—3bush. apples, 15bush. bananas, 3bush. grapes, 15bush. pineapples, 20 bags potatoes.	

*Overseas.*

## Federal Quarantine Act.

Three thousand and sixty-three packages of seeds, &c.

Four packages of rice were destroyed.

**EXPORTS.**

## Federal Commerce Act.

Twelve packages citrus fruit, 4,789 packages other fresh fruit, 323 packages preserved fruit, 38,030 packages dried fruit, 8 packages jam, 3 packages honey, and 1 package seeds were exported to oversea markets. These were consigned as follows:—

*London.*

Citrus fruit (packages) . . . . .	12
Jam (packages) . . . . .	7
Preserved fruit (packages) . . . . .	12
Honey (packages) . . . . .	3
Dried fruit (packages) . . . . .	28,819
Apples (packages) . . . . .	3,020
Pears (packages) . . . . .	42

*South Africa.*

Dried fruit (packages) . . . . .	3,756
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*New Zealand.*

Dried fruit (packages) . . . . .	3,096
Grapes (packages) . . . . .	767

<i>Canada.</i>	
Dried fruit (packages) . . . . .	300
<i>United States of America.</i>	
Dried fruit (packages) . . . . .	1,900
Preserved fruit (packages) . . . . .	235
<i>India and East.</i>	
Seeds (packages) . . . . .	1
Dried fruit (packages) . . . . .	159
Grapes (packages) . . . . .	337
Apples (packages) . . . . .	623
Preserved fruit (packages) . . . . .	76
Jam (packages) . . . . .	1

## Mr. Orchardist, has it occurred to you

that **IDLE ACRES PAY NO RENT**, and that those blank spaces in your orchard would become profitable and greatly increase the value of your property if planted with good fruit trees. Fill them this season with **QUALITY FRUIT TREES** from the Balhannah Nurseries.

Send for the **PLANTERS GUIDE**, Post Free to any address.

Inquiries solicited on any matters pertaining to fruit trees.

**BALHANNAH DECIDUOUS NURSERIES,**  
**BALHANNAH, SOUTH AUSTRALIA.**

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Manager . . . . . R. W. WILLIAMSON.

### TEMPORARY PREMISES—

11, GRESHAM STREET - - ADELAIDE.

## RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the rainfall at the subjoined stations for the month of and to the end of May, 1923, also the average precipitation to the end of May, and the average annual rainfall.

Station.	For May, 1923.	To end May, 1923.	Average to end May.	Average Annual Rainfall.	Station.	For May, 1923.	To end May, 1923.	Average to end M-y.	Average Annual Rainfall.
FAR NORTH AND UPPER NORTH.					LOWER NORTH—continued.				
Oodnadatta.....	0.85	0.87	2.45	4.93	Spalding.....	2.04	2.80	5.64	20.41
Marree.....	0.75	1.05	2.52	6.14	Gulnare.....	2.73	3.59	5.41	19.34
Parina.....	0.58	2.36	2.89	6.73	Yacka.....	2.60	3.06	4.71	15.45
Copley.....	1.02	2.34	3.61	8.50	Koolunga.....	2.23	2.71	4.92	15.87
Beltana.....	1.43	2.32	3.76	9.05	Snowtown.....	2.89	3.19	5.06	16.05
Ellinman.....	1.39	1.80	4.92	12.61	Brinkworth.....	2.98	4.02	4.71	16.26
Tarcoola.....	1.03	1.26	2.93	7.91	Blyth.....	4.15	4.78	5.44	16.96
Hookina.....	1.47	2.36	4.57	13.60	Clare.....	6.04	7.72	7.60	24.60
Hawker.....	2.04	3.08	4.28	12.93	Mintaro.....	6.19	7.83	6.58	23.40
Wilson.....	1.30	1.74	4.25	12.56	Watervale.....	5.44	7.08	8.53	27.44
Gordon.....	0.77	1.52	4.09	11.60	Ashburn.....	5.13	5.89	7.70	24.30
Quorn.....	1.39	1.96	4.66	14.24	Hoyleton.....	2.76	2.94	5.81	17.85
Port Augusta.....	0.95	1.12	3.80	9.68	Balaklava.....	2.65	3.04	5.44	15.91
Port Augusta West	0.88	1.06	3.49	9.74	Port Wakefield...	2.32	2.64	5.04	13.29
Bruce.....	1.59	1.59	3.58	10.76	Terowie.....	1.56	1.95	4.45	13.78
Hammond.....	1.71	3.59	4.17	11.90	Yarowie.....	1.48	2.40	4.67	14.18
Wilmington.....	2.63	2.85	5.98	18.44	Hallett.....	2.39	3.81	4.85	16.47
Willowie.....	2.17	2.71	4.21	12.44	Mount Bryan.....	3.60	4.53	4.67	16.74
Melrose.....	3.55	4.08	7.61	23.88	Koorunga.....	4.04	4.65	5.59	18.06
Boomeroo Centre...	2.31	2.61	5.02	15.07	Farrell's Flat.....	4.28	4.92	5.79	18.97
Port Germein.....	1.27	1.97	4.75	12.93	WEST OF MURRAY RANGE.				
Wirrbara.....	3.33	3.59	6.07	19.85	Manoora.....	4.42	5.08	5.63	18.78
Appila.....	2.50	4.32	4.97	15.01	Saddleworth.....	4.26	5.62	6.42	19.74
Craddock.....	1.05	1.77	3.96	11.50	Marrabel.....	5.30	6.49	6.04	19.87
Carrieton.....	1.95	2.37	4.24	12.91	Riverton.....	5.38	6.11	6.64	20.71
Johnburg.....	1.43	1.62	3.59	10.85	Tarlee.....	5.39	6.56	5.79	17.81
Eurelia.....	1.79	2.12	4.52	13.56	Stockport.....	5.22	6.31	5.21	16.49
Orroroo.....	2.01	2.58	4.79	13.75	Hamley Bridge...	4.76	5.48	5.37	16.52
Nackara.....	1.34	1.66	4.54	11.85	Kapunda.....	4.88	5.55	6.46	19.85
Black Rock.....	2.44	3.46	4.44	12.73	Freeling.....	6.20	6.92	5.64	17.90
Coolta.....	1.14	1.14	4.25	12.10	Greenock.....	7.12	7.71	6.53	21.60
Peterborough.....	2.27	3.43	4.64	13.53	Truro.....	6.84	7.34	6.66	20.80
Yongala.....	2.62	3.89	4.62	14.51	Stockwell.....	7.47	7.97	6.14	20.31
LOWER NORTH-EAST.					Nuriootpa.....	6.66	7.11	6.27	20.99
Yunta.....	0.66	0.86	3.51	8.93	Angaston.....	7.57	7.93	6.70	22.48
Waakaringa.....	1.13	1.30	3.49	8.61	Tanunda.....	7.34	7.67	6.88	22.20
Mannahill.....	0.85	1.12	3.49	8.79	Lyndoch.....	7.86	8.29	6.53	22.88
Cockburn.....	0.91	1.20	3.43	8.42	Williamstown.....	7.61	8.04	7.80	27.47
Broken Hill N.S.W.	0.94	1.59	3.92	10.08	ADELAIDE PLAINS.				
LOWER NORTH.					Mallala.....	4.34	4.74	5.47	16.66
Port Pirie.....	1.36	1.86	4.90	13.55	Roseworthy.....	5.38	6.13	5.48	17.29
Port Brughton...	1.54	1.92	4.83	14.27	Gawler.....	5.48	6.00	6.34	19.09
Bute.....	3.93	3.99	4.96	15.80	Two Wells.....	4.74	5.13	5.30	15.83
Laura.....	3.03	3.82	5.63	18.25	Virginia.....	4.76	5.34	5.72	17.31
Calowie.....	2.30	3.92	5.40	17.19	Smithfield.....	4.96	5.33	5.42	17.16
Jamesstown.....	2.37	3.92	5.35	17.86	Salisbury.....	5.48	6.32	4.15	18.45
Bundaleer W. Wks.	2.75	3.59	5.16	18.05	North Adelaide...	5.48	6.21	6.92	22.22
Gladstone.....	3.43	4.99	5.09	16.22	Adelaide.....	4.67	5.50	6.94	20.05
Crystal Brook.....	1.46	2.05	5.16	15.93	Glenelg.....	3.50	4.26	5.95	18.37
Georgetown.....	2.72	4.56	5.89	18.50	Brighton.....	4.54	5.26	6.61	21.34
Narriby.....	1.66	3.94	5.35	16.43	Mitcham.....	5.49	6.33	7.35	24.06
Bedhill.....	2.22	3.06	5.48	16.93	Glen Osmond.....	5.73	6.78	7.94	25.78
					Martill.....	5.92	6.86	8.09	26.24

## RAINFALL—continued.

Station.	For May, 1923.	To end May, 1923.	A'ge. to end May.	A'ge. Annual Rainfall	Station.	For May, 1923.	To end May, 1923.	A'ge. to end May.	A'ge. Annual Rainfall
MOUNT LOFTY RANGES.					WEST OF SPENCER'S GULF—continued.				
Teatree Gully .....	7-70	8-71	8-54	27-65	Talia .....	2-88	3-46	3-80	15-4
Stirling West .....	13-72	15-12	13-37	46-59	Port Elliston .....	3-99	4-49	4-49	16-5
Uraidla .....	12-45	13-74	12-83	43-92	Cummins .....	4-14	4-47	4-02	19-9
Clarendon .....	9-17	9-88	10-23	32-98	Port Lincoln .....	4-15	4-54	5-77	19-72
Morphett Vale .....	5-75	6-31	7-25	22-79	Tumby .....	2-10	2-70	4-08	14-76
Noarlunga .....	4-62	5-19	6-49	20-35	Carrow .....	1-64	2-29	4-08	14-80
Willunga .....	5-41	5-96	8-15	25-89	Arno Bay .....	1-37	2-00	4-17	13-30
Aldinga .....	3-81	4-47	6-36	20-35	Cowell .....	0-75	1-35	4-57	11-75
Myponga .....	6-30	7-50	8-31	29-16	YORKE PENINSULA.				
Normanville .....	4-15	4-82	6-53	20-61	Wallaroo .....	3-01	3-15	5-10	14-18
Yankalilla .....	5-15	5-92	7-36	23-10	Kadina .....	3-85	4-04	5-48	16-04
Mount Pleasant .....	9-22	9-75	7-77	27-16	Moonta .....	3-46	3-80	5-43	15-38
Birdwood .....	10-40	10-91	8-13	29-33	Green's Plains .....	4-85	5-18	5-00	18-89
Gumeracha .....	12-03	12-97	9-64	33-29	Maitland .....	5-18	5-87	6-43	20-15
Millbrook Reservoir .....	12-29	13-39	—	—	Ardrossan .....	3-57	4-38	4-65	14-11
Tweedvale .....	11-61	12-17	9-61	35-55	Port Victoria .....	3-50	4-41	5-24	15-47
Woodside .....	10-58	11-10	8-73	32-11	Curramulka .....	4-46	5-07	5-48	18-22
Ambleside .....	12-51	13-10	9-47	34-67	Minlaton .....	4-90	5-64	5-48	17-91
Nairne .....	8-42	8-87	8-37	28-42	Brentwood .....	4-90	5-49	4-85	15-53
Mount Barker .....	11-73	12-62	9-25	31-18	Stansbury .....	3-67	4-42	5-30	17-04
Echnunga .....	11-66	12-32	9-93	32-06	Warooka .....	4-71	5-30	5-38	17-81
Macoolfield .....	8-47	9-09	8-82	30-57	Yorketown .....	3-71	4-47	5-53	17-26
Meadows .....	10-90	11-66	10-50	36-04	Edithburgh .....	3-02	3-93	5-36	16-58
Strathalbyn .....	5-20	5-51	6-19	19-32	SOUTH AND SOUTH-EAST.				
MURRAY FLATS AND VALLEY.					Cape Borda .....	6-44	7-17	7-19	25-10
Meungie .....	4-75	5-33	5-95	18-66	Kingscote .....	6-02	6-52	5-73	19-10
Milang .....	1-97	2-31	5-16	15-40	Penneshaw .....	3-47	4-05	5-30	19-39
Langhorne's Creek .....	2-49	2-78	4-76	14-61	Victor Harbor .....	3-27	3-74	6-78	21-45
Wellington .....	1-87	2-35	5-05	14-77	Port Elliot .....	3-35	3-97	6-51	20-26
Tallem Bend .....	2-66	3-16	4-89	14-65	Goolwa .....	2-48	2-89	3-99	17-87
Murray Bridge .....	2-32	2-66	4-83	13-93	Pinnaroo .....	3-13	3-34	5-33	15-66
Callington .....	3-58	3-77	5-02	15-42	Parilla .....	2-19	2-59	4-45	14-65
Mannum .....	2-01	2-24	4-25	11-64	Lameroo .....	3-13	3-50	5-00	16-37
Palmer .....	4-56	4-60	4-61	15-47	Parrakie .....	2-56	3-13	4-45	14-54
Sedan .....	3-53	3-62	4-15	12-29	Geranium .....	2-73	3-30	5-02	16-19
Swan Reach .....	1-70	1-88	3-79	11-09	Peake .....	2-14	2-74	5-40	16-58
Blanchetown .....	1-14	1-21	3-84	10-16	Cooke's Plains .....	2-79	3-54	4-71	15-04
Endunda .....	4-20	5-17	5-44	17-54	Coomandook .....	1-95	2-61	5-35	17-48
Sutherland .....	2-31	2-69	3-43	11-19	Coomalpyne .....	2-44	3-23	5-31	17-42
Morgan .....	1-80	2-07	3-25	9-30	Tintinara .....	4-32	4-93	5-61	18-60
Waikerie .....	1-17	1-25	3-38	9-91	Koith .....	3-72	4-37	5-54	18-17
Overland Corner .....	1-28	1-44	4-05	11-07	Bordertown .....	4-21	4-63	5-85	19-44
Loxton .....	1-28	1-59	4-78	12-63	Wolseley .....	5-01	5-54	5-49	18-12
Renmark .....	1-21	1-23	4-87	11-09	Frances .....	4-63	5-18	5-09	19-18
WEST OF SPENCER'S GULF.					Naracoorte .....	5-11	5-77	6-63	22-52
Enola .....	0-23	1-26	4-83	10-02	Penola .....	5-96	7-00	7-90	26-29
White Well .....	0-23	0-43	3-25	9-08	Lucindale .....	5-28	5-92	6-55	22-95
Fowler's Bay .....	1-58	2-47	4-08	12-16	Kingston .....	5-48	6-46	7-92	24-47
Penong .....	1-77	2-05	4-28	12-49	Robe .....	6-41	7-32	7-28	24-59
Ceduna .....	1-37	1-81	3-35	10-36	Beachport .....	4-49	4-94	8-05	20-24
Smoky Bay .....	1-71	2-58	3-67	—	Millicent .....	6-24	7-27	8-94	29-36
Patina .....	2-39	2-86	3-86	13-34	Kalangadoo .....	6-92	8-30	—	—
Streaky Bay .....	1-15	1-91	4-55	15-10	Mount Gambier .....	7-31	8-35	9-76	31-24

## AGRICULTURAL BUREAU REPORTS.

## INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings		Branch.	Report on Page	Dates of Meetings	
		June.	July.			June.	July.
Alawoona .....	•	—	—	Georgetown .....	•	23	28
Aldinga .....	1022	27	25	Geranium .....	•	30	28
Allandale East .....	1047	—	—	Gladstone .....	986	—	—
Amyton .....	•	25	30	Glencoe .....	1036	—	—
Angaston .....	•	—	—	Glossop .....	•	27	25
Appila-Yarrowie .....	•	—	—	Goode .....	•	27	25
Arthurlton .....	1005	—	—	Green Patch .....	1014	25	23
Ashbourne .....	1022, 1035	—	—	Gumeracha .....	•	25	30
Balaklava .....	•	9	14	Halidon .....	1016	—	—
Balhannah .....	1022, 1035	29	27	Hartley .....	1024	27	25
Barmora .....	1020	26	24	Hawker .....	•	26	31
Beetaloo Valley .....	984	—	—	Hilltown .....	•	—	—
Belalie North .....	•	23	28	Hookina .....	981	28	26
Berri .....	1020	27	25	Inman Valley .....	•	—	—
Big Swamp .....	•	—	—	Ironbank .....	•	23	28
Blackheath .....	1035	29	27	Kadina .....	•	—	—
Black Springs .....	996, 1004	18	16	Kalangadoo .....	1047	9	14
Blackwood .....	•	26	24	Kangarilla .....	1025	—	—
Block E .....	985	26	24	Kanmantoo .....	•	23	28
Blyth .....	985	2	7	Keith .....	•	—	—
Boomeroo Centre .....	•	22	27	Ki Ki .....	•	—	—
Borrika .....	•	—	—	Kilkerran .....	•	26	24
Bowhill .....	•	—	—	Kimba .....	•	—	—
Brentwood .....	•	28	26	Kingscote .....	•	—	—
Brinkley .....	•	23	28	Kingston-on-Murray .....	•	—	—
Bundaleer Springs .....	996	25	23	Kongorong .....	•	28	26
Bute .....	•	26	24	Koonibba .....	•	22	27
Butler .....	1014	—	—	Koppio .....	1009	25	23
Cadell .....	•	—	—	Kyrbolite .....	1038, 1047	28	26
Canowie Belt .....	•	—	—	Lake Wangary .....	1005	23	28
Carrow .....	•	28	26	Lameroo .....	•	1, 2 <sup>d</sup>	27
Cherry Gardens .....	1023, 1035	26	—	Laura .....	989, 998	2, 30	28
Cianfield .....	•	—	—	Leighton .....	•	—	—
Clare .....	996, 1004	22	27	Lenswood and Forest Range .....	1026	—	—
Clarendon .....	1023	25	23	Lipson .....	1008	—	—
Claypan Bore .....	•	27	25	Lone Gum and Monash .....	1020	27	25
Cleve .....	•	27	25	Lone Pine .....	999, 1003	—	—
Collie .....	•	23	28	Longwood .....	1027	—	—
Colton .....	•	29	27	Loxton .....	1020	—	—
Coomandook .....	1020	27	25	Lucindale .....	•	—	—
Coomalpy .....	•	1, 29	27	Lyndoch .....	1005	28	26
Coorabie .....	•	—	—	McLachlan .....	1009	2	7
Craddock .....	•	—	—	MacGillivray .....	1027	26	24
Crystal Brook .....	986	28	27	Maitland .....	•	28	26
Currency Creek .....	•	—	—	Mallala .....	1006	18	16
Cygnet River .....	1035	22	26	Maltee .....	1015	22	27
Darke's Peak .....	•	20	—	Mangalo .....	•	—	—
Denial Bay .....	•	—	—	Marama .....	1017	—	—
Edillilie .....	•	30	28	Meadows .....	1028, 1035	27	25
Elbow Hill .....	•	6	3, 31	Meningie .....	•	—	—
Eurelia .....	982	15	20	Milang .....	•	9	14
Farrell's Flat .....	•	—	—	Millicent .....	•	2	7
Frances .....	•	30	28	Miltalie .....	1008	23	28
Gawler River .....	•	26	31				



## INDEX TO AGRICULTURAL BUREAU REPORTS—continued.

Branch.	Report on Page	Dates of Meetings.		Branch.	Report on Page	Dates of Meetings.	
		June.	July.			June.	July.
Mindarie .....	*	4	2	Roberts and Verran ..	1019	28	26
Minlaton .....	*	22	27	Rockwood .....	1034	25	30
Minnipa .....	1009	27	25	Rosedale .....	1060	27	25
Monarto South .....	1017	23	28	Rosy Pine .....	*	—	—
Moonta .....	1006	22	27	Saddlaworth .....	1005	—	—
Moorak .....	1040	28	26	Saddleworth (Women's)	1001	12	10
Moorlands .....	*	—	—	Salisbury .....	1005	5	3
Moorook .....	1020	26	30	Salt Creek .....	*	—	—
Morchard .....	982	23	28	Sandalwood .....	*	—	—
Morphett Vale .....	1029	28	26	Shoal Bay .....	1035	26	24
Mount Barker .....	1029	27	25	Smoky Bay .....	1010, 1015	—	—
Mount Bryan .....	*	—	—	Spalding .....	1005	—	—
Mount Bryan East ..	*	—	—	Stockport .....	1012	—	—
Mount Compass .....	*	—	—	Streaky Bay .....	*	—	—
Mount Gambier .....	1040	9	14	Strathalbyn .....	*	26	24
Mount Hope .....	†	23	28	Talia .....	1016	11	9
Mount Pleasant .....	1032	—	—	Tantanoola .....	*	23	28
Mount Remarkable ..	*	—	—	Taplan .....	*	2, 30	—
Mount Schank .....	1047	—	—	Tarcowie .....	981	26	24
Mundalla .....	*	27	25	Tarlee .....	†	—	—
Murray Bridge .....	*	27	25	Tatiana .....	1048	16	26
Mypolonga .....	*	—	—	Two Wells .....	*	—	—
Myponga .....	1005	28	26	Urquhart & Summerton	†	4	2
Nantawarra .....	1042, 1046	9	14	Veitch .....	*	—	—
Naracoorte .....	*	2, 30	28	Virginia .....	*	—	—
Narriby .....	*	2, 30	28	Waikerie .....	*	—	—
Narrung .....	*	—	—	Wall .....	*	—	—
Neeta .....	†	23	28	Wanbi .....	*	—	—
Nelshaby .....	1020	—	—	Warcovie .....	982	—	—
Netherton .....	990	—	—	Watervale .....	*	—	—
North Booborowie ..	*	—	—	Weavers .....	*	25	23
North Bundaleer ..	*	—	—	Whyte-Yarcowie .....	992	—	—
Northfield .....	1020	3	1	Wilkawatt .....	*	23	28
Nunkeri and Yurgo ..	*	27	26	Williamstown .....	1002	6	4
O'Loughlin .....	*	—	—	(Women's)	1005	—	—
Orroroo .....	†	22	27	Williamstown .....	982	27	25
Owen .....	1018	22	—	Willowie .....	*	27	25
Parilla .....	1018	25	30	Wilmington .....	1002-3	—	24
Parilla Well .....	*	—	—	Windsor .....	1020	5	26
Parrakie .....	*	—	—	Winkie .....	992	2	—
Paruna .....	*	22	27	Wirrabara .....	*	—	—
Paskerville .....	1019	27	—	Wirrega .....	1005	23	28
Pata .....	1047	2	7	Wirrilla .....	1013	23	21
Penola .....	*	30	28	Wirrulla .....	*	—	—
Petina .....	†	1, 29	27	Wolowa .....	1015	9	14
Pinnaroo .....	*	13	11	Wudinna .....	1020	—	—
Pompoota .....	*	22	27	Wynarka .....	*	—	—
Port Broughton .....	1033	16	21	Yabmana .....	992	26	24
Port Elliot .....	*	2, 30	28	Yacka .....	1016	26	24
Port Garmein .....	1015	—	28	Yadnarie .....	*	—	—
Pygery .....	1019	25	23	Yallanda .....	*	—	—
Ramco .....	1033	2	7	Yaninee .....	1004	23	28
Rapid Bay .....	991	—	3	Yeelanna .....	*	—	—
Redhill .....	1046-7	27	25	Yongala Vale .....	*	—	—
Rendelsham .....	*	28	26	Yorketown .....	1020	28	28
Renmark .....	*	—	—	Younghusband .....	*	—	—
Riverton .....	*	—	—				
Riverton (Women's) ..	*	—	—				

\* No report received during the month of May.

† Held over until next month.

‡ Formal.

## THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

### REPORTS OF BUREAU MEETINGS.

#### UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

HOOKINA (Average annual rainfall, 12in.).

April 26th.—Present: 11 members and two visitors.

**DESTROYING FOXES.**—Mr. J. Murphy contributed a short paper on this subject. During the last few years, he said, foxes had become very numerous, and had caused a considerable decrease in the lambing percentage in that district. Until recently many people, including sheepowners, were of the opinion that foxes would be a benefit to the country by destroying rabbits; but that was not the case, because where the foxes were allowed to remain unmolested, the rabbits were as thick as elsewhere. He thought it was due to so many landowners being under that false impression, and their skins being of little or no commercial value, that foxes had increased so rapidly. Netting fences were useless for keeping them back, because they could climb over even those which were a check on the dingoes. They would also burrow under the fences. Trapping had in most cases been found unsuccessful. Poisoning, he said, was the best and cheapest method of destroying them. Baits composed of fat and strychnine, or the same poison with birds, or on the carcass of a dead lamb, were suitable. He preferred fat, which would last for a considerable time when wrapped in paper. The baits should be laid along watercourses and sheep pads leading to the water, and should be lightly buried. He thought that if a small payment was made for scalps on a large holding, that would greatly encourage their destruction. During the discussion which followed, Mr. F. Cagney said he favored using poison for foxes. Mr. J. Westrop thought strychnine was the best poison to use. He would use about as much as would lie on a threepenny-piece, and twice that quantity of baking powder in a little fat. A trail should be dragged, and baits laid every 150yds. or 200yds. They should be buried to a depth of about 3in. or 4in. Mr. J. O'Connor thought birds made very good baits. Mr. O. Lindblom favored caulfat, poisoned with strychnine, and baking powder, laid along a trail close to water. Mr. B. A. Murphy would not make the baits as strong as recommended, nor was he in favor of burying them more than about 1in. If one bait was taken, he would lay another in the same place, because foxes often had mates, which came looking for them. He had often poisoned two or three in the same place in that way.

TARCOWIE (Average annual rainfall, about 15½in.).

May 1st.—Present: 17 members.

**SHEEP AND WOOL.**—"There is no doubt that sheep as a side line are one of the best paying propositions for the farmer, not only for the work they do to the fallow, but also because of the revenue they return in wool and mutton," said Mr. A. R. Sweet in a paper under the above heading. The paper then read as follows:—"The Merino is the best class of sheep for wool production. This breed of sheep carries a fleece that is not only heavy and dense, but it also has

the ability to maintain those qualities to a marked degree as the animal goes on in years, and the wool is noted for its character. A Merino ewe will rear half a dozen lambs and still cut a profitable fleece, whereas the crossbred will soon lose its weight in wool after three or perhaps four lambs. It is admitted, however, that the Merino is not the best sheep for fat lamb production. In judging a Merino ram the following points should be observed:—The head should be masculine and strong, with horns curving gracefully outwards from the head, and the general appearance should be one of strength. Depth of girth and breast measurement are particularly important. Folds of skin at the neck are an advantage, but the body should be almost free from wrinkles. Examining the wool closely for length of staple, notice how the wool carries down to the points and to the turn of the belly. Density, particularly along the back, can be gauged by noting the amount of skin that shows as the fleece is opened. It is also important to grip the wool, noticing how it fills the hand. Density has more effect upon the weight of the fleece than has length of staple. The character should be well defined and even, the quality high and soft to the touch, showing life and health. At shearing time the wool should be classed, but the extent to which classing may be carried should be governed largely by the size of the clip. It is a mistake to over-class a small clip, but even in such a case the wool should be matched as closely as possible. The amount of grease is a very important consideration in estimating yields. Feel the wool for clamminess. The high-yielding wool feels warm to the touch, while the low-yielding fleece is cold and clammy. Skirting should aim at the removal of all the stained wool and heavy low-yielding edges from the fleece. This should be done as lightly as possible and any scattered burrs removed. Finally, roll the fleece neatly, but not too tightly, the shoulder wool being shown on the outside." In the discussion that followed, Mr. Kotz said he did not agree with the writer as regards a ewe cutting a payable fleece if kept until she produced six lambs. He favored a cross between a Romney Marsh ram and a Merino ewe, because that gave length of wool to the fleece, and produced a large sheep, which was better for mutton. Mr. J. Nunes did not favor the pure-bred Merino; he favored the cross spoken of by Mr. Kotz. He had killed a lamb of that cross that at seven months old weighed 70 lbs.

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#### WARCOWIE (Average annual rainfall, 12.16in.).

April 30th.—Present: eight members.

**THE WILD DOG PEST.**—Mr. B. Crossman, who read a short paper on this subject, said for the greater part of the year the farmers in that district were not troubled with wild dogs, but at the approach of the winter months there was a possibility of the dogs leaving their haunts in the ranges and coming down among the flocks of sheep. He considered that sheepowners should take concerted action to deal with the pest, and arrangements should be made whereby a simultaneous distribution of baits would take place. Strychnine mixed with rendered fat was good for destroying both dogs and foxes. In the discussion that followed, it was mentioned that butter made a tempting bait for wild dogs. Good results had also been obtained by placing a piece of cyanide of potassium in the centre of a small ball of fat.

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**EURELIA, April 20th.**—Several matters of local importance were brought forward for discussion. An interesting exhibit of grain, including samples of Federation, Onas, Florence, Field Marshal, Bower, and Zealand Blue wheats and Mortgage Lifter oats was tabled by the Hon. Secretary, (Mr. F. P. Wall).

**MORCHARD, April 28th.**—Mr. J. Scriven contributed an interesting paper, "Ancient and Modern Methods of Cultivation." The paper was well received, and a keen discussion followed.

**WILLOWIE, April 25th.**—Several items of local interest were brought before members, which resulted in a profitable and enjoyable meeting.

## 65 Hens Laying 40 to 50 Eggs a Day.

This letter from a N.S.W. user of KARSWOOD POULTRY SPICE (containing ground insects) tells much the same story that over half a million other users of KARSWOOD have to tell.



If your own hens are not laying as they should do, here's the remedy. Read Mrs. Jackson's letter and decide to make a test yourself.

### 40 TO 50 A DAY FROM 65 HENS!

"I began to feed 'Karswood' to my chicks at six weeks old, as an experiment, having heard it always very highly recommended in England. My chicks have given me no trouble in rearing, and commenced laying from 4½ to 5 months of age a good sized egg, and no 'pigeon' eggs among them. They are laying well on a simple mash—two parts pollard and one part bran—with wheat for evening grain, and now, whilst my hens are moulting, I give extra middy mash to keep them in heart. I have refrained from any outlay in ready-mixed mashes, or meat meal, &c.: my one extravagance has been 'Karswood Poultry Spice,' and they get it regularly every morning, according to directions, and I am sure it more than pays for its cost. From 65 hens, with which I commenced, I have been getting 40 to 50 eggs daily, and have reared 200 pullets. I give Epsom salts and sulphur alternately every third morning. They are kept on free range as we have an orchard.

Yours faithfully,  
(Mrs.) ELSPETH JACKSON.  
'Sunnyridge Orchard',  
Kenthurst, N.S.W."

There's concrete evidence.  
Make a test on your own  
hens and see the benefits of  
KARSWOOD POULTRY SPICE.

### NOTE THE ECONOMY

1s. packet supplies 20 hens 16 days.  
2s. packet supplies 20 hens 32 days.  
12s. tin (7lbs.) supplies 140 hens 32 days.  
14lbs. tins, 25s. 28lbs. tins, 43s.

**COSTS ½d. A DAY TO MAKE  
12 HENS LAY.**

### TRY A 1s. PACKET.

Ask your grocer or local produce dealer to supply you with a 1s. packet of KARSWOOD POULTRY SPICE. Try it for a fortnight on half a dozen of your own hens. Results are not instantaneous, for KARSWOOD persuades the birds to lay, and does not jerk them suddenly into a state of heavy production. It takes a fortnight or three weeks to show results, but they are good and sure.

If your local dealer cannot supply you, drop a postcard to the agents for your State, who will give you the name of your nearest supplier.

AGENTS FOR SOUTH AUSTRALIA—

**S. C. EYLES & Co.,**  
CURRIE ST., ADELAIDE.

NOTE: If supplied by Agents direct, postage must be added to cost.

## KARSWOOD POULTRY SPICE

GUARANTEED NOT TO FORCE THE BIRDS.

## MIDDLE-NORTH DISTRICT.

## (PETERBOROUGH TO FARRELL'S FLAT.)

BEETALOO VALLEY (Average annual rainfall, 23.50in.).

April 10th.—Present: 12 members and two visitors.

**CARE OF FARM STOCK.**—The following paper was read by Mr. P. Curtin:—  
 "Success in farming can only be attained when thorough care is given to the plant and stock on the farm. The horse is the animal before any other class of stock that should be given every attention. When the horses are working hard, especially during seeding, fallowing, and harvest, they should never be turned out of the stable. For ordinary farm work I consider either good wheat or oat chaff quite suitable for feeding, with long hay for the last feed at night. Give them all they can eat without wasting. Feeding should be as regular as possible, with a good supply of water always available. Good stabling and grooming are essential. Teams of eight horses or more need capable drivers to prevent the animals from being injured. All young stock or light horses should be kept separate from the workers, because they are very troublesome, and often deprive the workers of their food. The feeding and care of cattle are very often neglected. Milking cows should never be galloped or worried with dogs, simply because the farmer has not the proper conveniences for yarding and milking. A dairy cow is simply a machine, and must be well looked after and fed to give satisfactory results. Sheep management varies according to the breed of sheep and the class of country in which they are kept. In our district they need very little attention, the main point being to exercise care in not overstocking the holding."

**CARE OF THE ORCHARD.**—Mr. G. Bird contributed the following paper:—  
 "The care of an orchard should begin from the time the trees are planted, which should be in late winter or early spring. The land should be ploughed in the following autumn. If the land has any tendency to wash, this will prevent any such happening by allowing the water to soak into the ground and start the weeds. The weeds could then be left until the spring ploughing. When the weeds are turned in they act as a manure by adding organic matter to the soil. The young tree should be pruned in such a manner as to provide it with well-balanced limbs, so that it will not be affected by the winds. In the case of an old tree, it should be kept well open to allow light and air to penetrate to the centre, but at the same time care must be taken not to allow the sun to burn the main arms. There are several orchard pests which render spraying necessary. When pruning is in progress a sharp lookout should be kept for aphids on peaches and nectarines, and woolly aphids on apples. So soon as peach aphid makes its appearance the trees should be sprayed with a solution of tobacco wash, made by placing 1lb. of tobacco waste in 20galls. of water and allowing it to soak for 24 hours. Kerosine emulsion is also a good spraying mixture. This can be made by taking ½lb. of soft soap, ½gall. boiling water, and then adding 1gall. kerosine. Mix well, and add to 10 times its bulk in water. Woolly aphid can be sprayed with kerosine emulsion or red oil. When using red oil one should exercise great care in mixing. Soft water should be used, but if it is not obtainable about 1oz. of extract of soap should be added to each gallon of water. Use 1gall. of oil to 24 of water. If the oil is not properly mixed there will be a certain amount floating on top, and if such is the case it should not be used, because the oil that is floating on top comes through the pump and on to the trees, and it is liable to burn the bark. Codlin moth is controlled by spraying with arsenate of lead. The tree should be sprayed immediately the petals commence to fall, and the operation should be repeated about every three weeks. The sprays to combat garden pests are many, but Bordeaux and Burgundy mixtures are the best. Bordeaux consists of 1lb. of sulphate of copper (bluestone) and 1lb. lime to 20galls. water. Burgundy mixture consists of 1lb. of sulphate of copper and 1lb. washing soda to 12galls. of water. The same mixtures will also kill shot hole in apricots. The trees should be sprayed so soon as the buds commence to show a trace of pink color; later than this will most likely burn the buds, and so spoil the fruit crop. If only a small supply of water is available, a trench can be made around trees, but if an unlimited supply is on hand it is advisable to flood all the ground when irrigating the trees."

## BLYTH (Average annual rainfall, 16.46in.).

May 5th.—Present: 13 members and seven visitors.

**HORSE v. TRACTOR.**—The meeting took the form of a debate on this subject, Mr. E. H. Lanyon speaking in favor of "The Tractor," and Mr. J. S. McEwin in support of "The Horse." In the discussion that followed, Mr. Cornish, who had disposed of his horses about nine months ago, gave figures in support of his action, and claimed that the tractor was a success, provided the right type of machine was procured for the work. Other owners of tractors were not equally convinced that the tractor at the present time was able to entirely displace the horse on the farm, but were quite prepared to give it the status of a second team.

## BOULEROO CENTRE (Average annual rainfall, 15.83in.).

April 27th.—Present: seven members.

**ECONOMY ON THE FARM.**—In the course of a paper dealing with this subject, Mr. C. Paterson first referred to the farm machinery. Where the ground was not too rough, large machines should be brought into operation, because the work could be done in less time, the wages bill reduced, and there would be very little difference between the upkeep of the large machine and that of a smaller one. A farm blacksmith's shop was necessary, and should be equipped with tools and a carpenter's kit. On wet days eyebolts, links, &c., could be repaired, but the farmer should be careful not to be working in the shop when he should be out in the paddocks, and not to undertake jobs that he was not capable of doing. The saddler's account could also be reduced if a side of harness leather and a supply of copper rivets were kept on hand for repairing the leather work. He also considered it to be more economical to feed the working horses with more oats and less hay. Oats yielded heavy crops when sown on fallow land, and profitable returns could also be obtained from the stubbles. It would be more profitable if farmers kept a few good cows instead of a herd of wasters. It should be the policy of the farmer to see that nothing was discarded until it was thoroughly worn out. Wheat screenings should be fed to the fowls or pigs. Super bags, if thrown in a waterhole immediately after seeding was completed and allowed to soak for a few days, and then hung up to dry, could be used to hold seed wheat or oats. Old cast iron should be picked up, taken to the foundry, and exchanged for plough shares. Old galvanized iron tanks should be cemented inside and out, and would still be of considerable service. A saving could also be effected by devoting a small piece of land to a vegetable and fruit garden, provided sufficient water and time to attend to it were available. It was also necessary for those in charge of the domestic part of the farm to study and exercise economy.

**WATER CONSERVATION.**—The following paper was read by Mr. L. Michael:—"In a district such as ours the conservation of water, both for stock and domestic purposes, is a matter which needs very careful attention. Certain parts of the district are fortunate in being able to obtain supplies of spring water at a reasonable depth, and where this is so, there is no doubt that a well or a bore is preferable to dams. On a farm of 500 acres from £200 to £300 is not too much to spend in obtaining a supply of good permanent water, if such is available, because such provision will easily add 10s. per acre to the value of the farm. If one has to go more than 20ft. or 30ft. deep to obtain water, a bore is quicker, cheaper, and safer to put down than a well. Where supplies of good water are difficult to obtain, underground dams are necessary, and if these are made large enough and cleaned out periodically, there need be little danger of water shortage. The site for the dam should be selected as near to the stable as a suitable piece of land can be obtained. A piece of sloping land should be left uncultivated in front of the dam, because this will run the water more quickly than cultivated land and will not wash so much silt into the dam. Roads are useful for running water, but after a dry spell a large amount of dust will wash from them into the dam. Water should not be allowed to run from the stable into the dam. If that should happen, a drain should be made to carry the water away elsewhere. For scooping out a dam which contains much silt, a silt scoop is the best to use. This can be used when the dam has water in it or not, so long as the mud is wet and sloppy, and as the horses are working right away from the banks of the dam, it is much to be preferred to having the team clambering up and down a slippery bank all the time. Where one is entirely dependent on dams, they should be fenced off and a windmill should be erected to pump the water into a trough for

the stock. The outlay necessary for this is not very large, and it keeps the water cleaner at all times, and especially when the dam is getting low, because stock going into the bottom of a dam stir the mud up and make the water practically useless. The supply of water for household purposes must not be overlooked. It matters little whether the tanks are underground or above so long as they are big enough to ensure an adequate supply at all times. In conclusion, I would like to say that in this district, although the rainfall is somewhat erratic, if proper precautions are taken it is only in exceptional cases that any hardship need be felt with regard to the water supply, and there is no doubt that a shilling spent in preparation will save pounds in the long run, because nothing is more unprofitable or more of a drudgery than water-carrying."

#### CRYSTAL BROOK (Average annual rainfall, 15.62in.).

April 27th.—Present: 17 members.

In the course of a paper, "Breeding and Selecting Seed Wheat," Mr. M. Pary first referred to the valuable work that had been performed by the late Mr. Farrer, of New South Wales, and Mr. Marshall, of South Australia, in introducing new types of wheat and in increasing the yield per acre throughout Australia. Continuing, the speaker said seed wheat could be more easily selected whilst the crop was in head, than when the grain was in the bag. It was also a good plan to cut tracks with the binder around the wheat that was intended for seed, and from those portions of the crop weeds, barley, and heads of wheat not true to type could be removed by hand picking. Where it was possible, he suggested having two small paddocks fenced off and used for growing seed wheat. The land could be fallowed and well worked to kill weeds. After planting, hand picking and hoeing, if needed, could be carried out at odd times throughout the season. He was convinced that if clean seed, free from smut, was carefully used for sowing, it would not be necessary to pickle the seed from it for planting the general crop the coming year. That would not only do away with much of the work of pickling, but the better germination which resulted from planting unpickled wheat would enable the farmer to obtain increased yields.

#### GLADSTONE (Average annual rainfall, 16in.).

May 11th.—Present: 14 members.

**TREATMENT OF CREAM.**—The following paper was read by Mr. O. J. Fewster:—"The quality of butter depends largely on the quality of the cream from which it is made. No farmer ever considers his cream inferior to that of his neighbor, and very often the remark is made, 'I only got 35 per cent. butter fat, or so many pounds of butter, from my can this week, and my neighbor received 45 per cent. or 50 per cent. butter fat, or so much more butter, from his can.' This difference, in a great many instances, can be traced to the running of the separator. In a new separator, the cream screw is so adjusted that if the regulated revolutions he maintained, a cream containing between 45 per cent. and 50 per cent. of butter fat will be obtained. An operator of a separator should have a watch or some other means to see that the regulation revolutions are being maintained. Too often the farmer says, 'I received 45 per cent. test last week, and this week only 38 per cent. test,' and without trying to find out the reason, blames the factory manager. So, if the separator is geared to 45 revolutions per minute, and only 40 are being turned, the howl revolutions are at least 500 less. The farmer, in consequence, gets a much larger yield of cream, but of a poorer quality in fat. Another error made is that of trying to run too much milk through the separator in too short a time, and where there is a fair quantity to be separated, the consistency will be maintained for a time, but as the operator tires, the revolutions are less, and though the return of cream is greater, there is a corresponding falling off in quality. The worth of cows on a dairy farm is often gauged by the number of cans of cream, not by the quantity of butter the cream produces. Another very common complaint of the farmer is the classification of the cream as second grade. There are many factors which affect the quality of cream, such as insanitary cowsheds, badly ventilated dairies, keeping small quantities of cream too long, water supply, fodder, &c.

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Water for cows should, if possible, be provided from a trough supplied by a windmill and ball tap. This ensures the trough always being full. Water coming from black, puggy soil often carries an organism which has a bad effect on milk and cream. Cows should be prevented from drinking at these places. The cow byre or milking shed should have fairly high walls, at least 8 ft., and it should be seen that there is plenty of light and ventilation. The floor should be impervious to moisture, and have a fall from the front to the back, to carry off all moisture and waste matter. The shed should never be used as a drying room for sheep, rabbit, fox, or skins of any kind, because they attract flies and exude a most offensive odor, which taints milk and cream very quickly. The dairy should not be used as a store room; it should not contain anything but the separator and cream. The building should be of a fair height, and large enough for the convenient handling of the milk, and plenty of light and ventilation is, of course, essential. Fodder for cows should be of first quality. Here, again, it is too often said, 'This chaff is not good enough for the horses; give it to the cows.' The quality of cream depends on the quality of feed given or obtained by the cows. Keeping cream too long is another great oversight of small dairy farmers. A can is placed under the separator on, say, a Monday morning, and it remains there for nearly a week, or possibly longer, until it is filled. The cream from each separating goes into it every day direct from the separator—hot or warm cream in on top of cold, and in some instances it is the practice not to wash the separator every time it is used. So when a can of cream of this sort is delivered at the factory, more especially if it has a journey to go, it is fermenting and boiling over the top of the can, and then is heard the cry, 'I only got second or third grade for the last can I sent to the factory.' The separator should be washed as soon after use as possible, and all parts thoroughly scalded and then placed to dry in the sun, if possible; if not, in a nice, clean, warm oven. A separate vessel should be used to catch each separating of cream, and the morning's cream should not be added to the general can until evening, and the yield of cream from the evening's separating should not be added to the general can until next morning, and so on. First of all, cream should be cooled as soon as possible, so as to prevent bacteria working so rapidly. The best method of cooling the cream as quickly as possible is by placing the vessel containing the cream in another vessel containing cool water, stirring the cream for a few minutes, thereby cooling the cream and allowing some of the gases that may be present to pass off. If the cream is left to be cooled by the atmosphere, cooling will not take place so rapidly. When adding the cream to the general can always stir all thoroughly together. The little extra labor will be repaid handsomely, and will assist the factory manager greatly, apart from the fact that it will raise the standard of the quality of the butter in the district, which will enhance the value of the dairy. The pasturing of dairy cows on rape, or any other rank greenstuff, immediately prior to milking, has another serious effect on the quality of cream. While the food is undergoing the process of digestion some of the gases pass into the blood, and as the milk is secreted from the blood, some of these are given off in the milk. If cows are pastured on the fodder immediately after milking, and taken off several hours before milking, the gases in the meantime will be consumed by the digestive system. Unclean cans also have a detrimental effect on the quality of cream stored in them, and those in a rusty condition should not be used. Rust has a tendency to honeycomb, and the cells thus formed make good breeding places for different kinds of bacteria. If cream be kept in one of these cans for a few hours with the lid on, it will give off a very strong, unsavory smell of a metallic nature, and this is one of the many causes of second-grade or third-grade cream. When cans are returned from the factory, they should always be washed, steamed, or put in boiling water before being again used, and it should not be overlooked that the outside as well as the inside requires attention. Cream is often carted to the railway station and left standing there, perhaps for hours, exposed to the hot sun, because no facilities for proper storage are available at the stations. When treated thus in the hot weather, and afforded no protection from the sun, is it any wonder that it is of inferior quality? It is always advisable when carting the cream to the railway station or factory to protect the can from the heat of the sun. Most of us know that if a sheep is killed in the heat of the day and exposed to the boiling sun, the carcass is soon in a state unfit for human con-

sumption; but the thought is never given to cream, with its sensitiveness to very strong light and heat. From these few observations it is plain that the farmer possesses the power to regulate the cream returns, and to improve the quality of the cream, and, if he would but exercise this power, he would raise the standard of the cream, for no buttermaker can manufacture a first-quality butter out of second-quality cream." In the discussion that followed, Mr. J. H. Sargent asked if all factories made three grades of butter, and Mr. Fewster replied in the affirmative. Mr. C. H. Lines related his experiences in connection with a visit to the Gladstone Butter Factory. The process of cream testing particularly interested him. The greatest care was taken, remarked Mr. Lines, to test each can of cream, and the result of such testing was always to the benefit of the persons who took pains to manage their cream properly. Mr. Fewster then explained that the commercial pound of butter was made up of 83 per cent. of butter fat, the remaining ingredients consisting of moisture, casein, salt, &c. In reply to Mr. Sargent, Mr. Fewster stated that it was better to turn the separator at a rapid pace. In reply to Mr. Blesing, Mr. Fewster stated that if the milk cooled immediately, no evil results would be likely to follow, and there would then be no need to separate more than once a day. It would be a mistake, however, to add warm cream to cold cream in the separator, and they should always try to keep the cream from coming to the top. In reply to Mr. Sargent, Mr. Fewster said he would not advise people to keep cream any longer than three days. As regards "ripening" under the system or process of pasteurising, it made no difference. It would be better to milk cows in a shed than in the open, provided that due attention was paid to sanitary requirements. Any ill-effects that might result from the cream of a newly calved cow would be practically eliminated by the process of pasteurisation. With regard to the necessity for temporary shelter for the cream at railway stations, all that would be necessary was a structure composed of a few planks and sheets of galvanized iron, something that would permit of the free circulation of air. In reply to a question from Mr. J. Bergin, Mr. Fewster said that the most practical way to cool the milk would be to place the vessel containing the milk within another vessel containing cold water, and the simplest way of aerating the cream was to stir it around with a clean piece of deal or other light timber.

#### LAURA.

FODDER CROPS.—Mr. H. Peck, jun., read the following paper, "Summer Fodders."—Lucerne is the most popular, and in my estimation, the greatest of all fodders. We have been told its value so often and it is so well known, that I will not further comment upon it. Next in the line, and for anyone who has a spare piece of ground which has been ploughed up during the winter months and cannot spare it for lucerne, I should advise Sudan grass. It makes excellent food. Cows prefer it to lucerne, and if fed to them in conjunction with dry chaff, they yield butter of the highest quality, showing both good color and flavor. It can also be cut for hay. It makes excellent chaff, there being no thick stems, as in maize and some of the coarser sorghums, and is relished as much by stock in that form as when green. Maize might be all right if put under irrigation, but without that it will not come up to the two mentioned before, for, unlike the former, it produces only one growth, and should December and January be at all dry, it will run to seed by the end of the latter month, and any rain resulting after that time would cause hardly any growth. About this time last year Hubam clover was placed on the market. When we turned the cows into it they never even looked at the Hubam, but cleaned the Sudan right out, and then only turned their attention to the Hubam; with the result that there is still a fair quantity of it left, although the cows have been put on it for several months. My opinion about Hubam is that it grows fairly well once it is up, but it is too coarse and bitter for stock to relish. When sowing, it is well to remember that poor germination means thin crops. Once you have decided to sow any of the above mentioned, if you cannot afford to sow them in fallow ground see that you plough the plot up as early as you can in winter, or better still, in autumn, should opportunity offer, so as to get some of the heavy winter rains on it to pack it down well. Do not neglect to scarify it at least once, harrow it a few times, and if it is still rough by the time you are

ready for sowing, give it a good rolling. Lucerne should be sown from the middle of August to about the same time in September, or, after the most severe frosts have gone. I do not think frost kills lucerne after it is once established. As regards Sudan grass, do not be in a hurry with that, as it will not grow until the real warm weather comes. The first time we sowed it was the end of November, and we were already hay carting. In the beginning of February it was as high as a man in places. We cut it with the binder, and it went about a ton to the acre. Now, as to the depth of sowing. Lucerne should be only sprinkled on the top, and given a rolling or a light harrowing. Sudan grass should be drilled in. Put all the pressure on the drill you like, and get down into the moist soil and you will find, provided you have got the ground in proper order, and are sowing soon after rain, that the young plants will come up within a few days. We have usually mixed the seed of both lucerne and Sudan grass with super, using about 60lbs. to the acre. Last year we used gypsum, as the ground was very salty. As to the quantity of seed to be used per acre, from 8lbs. to 15lbs. should be sufficient with Sudan. As to winter grass crops, my experience stops practically at the cereals, oats, wheat, and barley, excepting last year, when we tried Suhterranean clover, but this turned out a failure. First of all it was sown too late. But I believe that with an early sowing it would not be a success, as our flats are not wet enough. It might be of some use as you get further west into the hills. As to oats and barley, I believe they could with advantage be sown on any paddock which it is intended to leave out for a year, and be grazed with horses, sheep, and cattle; and if the season should turn out at all well, they might be reaped and kept for times of scarcity.

#### NORTH BOOBOROWIE (Average annual rainfall, 16.35in.).

May 1st.—Present: 10 members.

FARM MANAGEMENT.—Mr. W. C. Catt, in a paper dealing with this subject, expressed the opinion that the profitable occupation of the farm depended on the price that the farmer had had to pay for the freehold or the lease or interest under which the farm was being worked. Success also rested on the layout of the farm buildings and paddocks and the water and fodder supplies for the stock. The paper then read as follows:—"If the farm is mainly devoted to wheat, the farmer should grow those varieties best suited to his district. He could confine the varieties to one or two sorts, and then with a little extra care he could keep the wheat fit for seed and so create a market for seed from the surrounding farmers. A good supply of hay should be cut, sufficient, if possible, to last the farmer for two seasons. This should be carted and stacked as soon as possible and the stack built and covered to keep out the rain. Fallowing should be commenced as soon as the crop is sown, provided the land is in a suitable condition. If it is very dirty with oats and weeds, it is a good plan to burn the stubble early, and then work it over with the cultivator. After rain falls the weeds will germinate, and when the fallowing time comes they can be turned under. The value of a little feed does not warrant leaving the work of fallowing until late in the season, because there is a probability of it being badly ploughed, which is one step towards a poor crop. The aim of the farmer should be to give the fallow all the work he can at the proper time, to cultivate it into the best possible condition to grow heavy crops, and keep down the growth of weeds and rubbish as much as possible. Sheep should be run on the fallow to keep down the weeds and consolidate the land. The farmer should have the most suitable implements and machinery that the size of his farm and his means will allow, but he should be careful not to buy expensive new machinery on time payment before he is satisfied that they are suitable for his class of country. A good stable and yard for the horses is also necessary, and it should be kept as clean as possible. Horses in a warm stable with good feeders or mangers take the least feed and are in a better condition for a lot of hard work when wanted. A smaller number of horses well fed and cared for are more satisfactory than an ill fed and cared for team, and the fault a large number of farmers make, especially where the land is of high value, is to keep too many horses, mainly a poor class. The feed consumed by such stock could be put to better advantage by feeding it to fewer animals and of a better class, or by hand-feeding sheep, which of recent years have

been one of the most profitable animals on the farm. The farmer should have a room adjacent to the stable in which to keep the harness. This should be kept in the best order and repair, and two or three coats of oil applied to the leatherware once a year will prove a good investment. Sheds should be provided for the machines and vehicles, and they should be placed under cover when not in use. The poultry should be kept out of the shed and not allowed to roost on the machines, &c., and foul them with droppings and lice. A substantial and reliable chaff-cutting plant, with a large chaffroom capable of holding a month's supply, should be fixed adjacent to the stable manger. This will help to minimise the work of feeding the horses. The fences should be the best a farmer can afford, for a good fence is a good asset on any farm. I prefer heavy strainers and long strains, and for large stock stout wires with a barb on the top. For sheep, lighter wires will do, but all the fences should be kept in repair throughout the year. The gates should be the best the financial position of the farmer will allow; iron swing gates are to be preferred, but if of wire they should be kept in repair. It should be the aim of the farmer to keep as near as he can to one type of stock. Before sowing any crops the seed should be cleaned or graded after coming from the field. Cereals, such as barley and wheat, should be pickled. A little extra care spent in the cleaning and pickling often means the difference between a good crop and a bad one. The amount of super sown per acre should be on the heavy side, and if the land is left out to grass for a year, the stock will find the benefit of the extra quantity of fertiliser that has been applied. If the farmer keeps sheep, they should be regularly attended to, and kept supplied with feed and water. If blowflies are troublesome, the sheep should be properly cared for, and at shearing time the wool should be classed as well as possible and the bales marked with neat stencil brands. The general work of the farm should be carried on in a steady way, and not by bursts of work and periods of idleness, which are bad for both man and beast. Time should be given to all machines and implements to see that they are in order before starting on a fresh job, and that they are capable of doing good work. A sufficient supply of capable labor should be available so that all work to be done can be started and completed at the proper time."

REDHILL (Average annual rainfall, 16.79in.).

May 8th.—Present: 10 members.

FAT LAMBS.—Mr. W. B. Torr, who contributed a paper on this subject, said there was no doubt that their district was able to breed the type of lamb suitable for the London market, but many of the breeders had yet to learn the best method of breeding and feeding the lambs. The first point that had to be considered was the adaptability of the area to be used for fat lamb raising, and whether, in ordinary good years, it could produce a 36lb. dressed-weight lamb at from 4½ months to 5 months old. In order to attain that it was evident that the feed should be good at lambing time, and that the ewes should be in a strong condition to rear the lambs. It was his opinion that such conditions could only be arrived at by understocking. One particular item, especially from the point of view of the small breeder, should not be overlooked, and that was the grading of the lambs. He expressed a preference for the Shropshire Down crossed with the Lincoln-Merino first cross ewe; but whatever breeding was favored, the breeder should aim chiefly at conformation and early maturity. None but deep, level, wide, square, and roomy ewes should be used for breeding, and these should be mated with rams thick through the heart, shoulders, and back, with prominent brisket and low coupled legs, small heads, and thick necks. The weight of carcass desired by the English buyers was from 34lbs. to 38lbs. dressed weight. When gauging for dressed weight from live weight, it could be reckoned that a 4 months' old woolly lamb in prime condition would dress, when fresh from the paddock, about 2lbs. less than half of its live weight. The lambs wasted considerably when handled extensively, so that when computing weights, it was advisable to allow for 2lbs. extra for drafting and trucking or travelling, and the shrinkage of the carcass in the freezing chambers. The overheating of the lambs when being driven should not be permitted, neither should the animals be poked with sticks, or the wool pulled when they were being placed in the trucks. Pulling the fleece bruised the carcass, and lambs so treated would be excluded from export.

## WHYTE-YARCOWIE (Average annual rainfall, 13.91in.).

April 14th.—Present: six members.

**THE FAT LAMB TRADE.**—Mr. J. M. McCallum contributed a paper on this subject. The freezing and export of lambs, he said, was again being established, after a long recess during the war, and he thought the mixed farmer should give that matter consideration. It would be necessary to have crossbred sheep in order to secure the early maturing lambs. He recommended the Merino crossed with either the Leicester or Dorset. The Shropshire produced a good lamb, but there was a risk of losing a few ewes at lambing time. He would not use the crossbred ewe. Although the lamb matured quickly, the difference was lost in the wool. The advantage of the crossbred lamb was that it left the feed paddock earlier, thus enabling more ewes to be kept. Under favorable conditions in that district, 80 per cent. of the lambs would be ready for market in four months, weighing from 32lbs. to 40lbs. dressed weight. In his experience with a flock of 400 ewes he had found that from the time the first lamb was dropped, 80 per cent. were off the ewes in five months. The balance were shorn and ready for the market two months later, and there was only one that was not fat. He said it was natural to expect that the ewes would put a better fleece under those conditions. During the discussion which followed, members expressed themselves adverse to mixing the breeds; the pastures were too uncertain to be sure of marketing all the crossbreds as fat lambs. The blowfly pest was a serious menace this season; foxes were also doing a lot of damage in that district.

## WHYTE-YARCOWIE (Average annual rainfall, 13.91in.).

May 5th.—Present: six members.

**IS SUPERPHOSPHATE LOSING ITS MAGIC?**—In opening a discussion on this subject, Mr. E. J. Pearce replied in the negative. Whilst it might be said that the land did not respond so well as formerly to light dressings of super, the cause had to be sought in other directions. It seemed reasonable to suppose that over a succession of years heavier crops would deplete the soil of other necessary constituents, notably of humus, and that would be the real cause, and not that super had in any way deteriorated or lost its magic. The natural conclusion was that it was necessary in some way to restore the constituents that had been taken from the soil by the heavier crops produced with the aid of super during a period of good seasons. The results of experiments conducted at Boohorowie Experimental Farm were referred to as proof that it would pay to use heavier dressings of super, even up to 2cwt. per acre in some instances. Mr. McCallum said, judged from a fodder-producing point of view, super seemed to have lost its magic, but that might be due to the repeated fallowing of the land and better cultivation. Mr. Keatly found that his crops seemed to blight if he used more than 4cwt. to the acre. He thought the trouble was, in part, due to the light spring rainfall. Mr. Hunt was convinced that it paid to use more than 60lbs. of super, which was the general practice a few years ago. The chairman (Mr. McEntee) said the matter was one for experiment.

## WIRABARA (Average annual rainfall, 18.91in.).

April 9th.—Present: nine members.

**RABBIT DESTRUCTION.**—In the course of a short paper dealing with this subject, Mr. T. A. Stead said one of the first steps that should be taken in keeping the rabbits in check was to wire-net the boundary fences and see that they were kept in good repair. The poison-cart did good work if used when there was no green feed about, and if it were used just after a shower of rain it would be found that the rabbits would take the baits most readily. In places that were too rough for the cart it was a good plan to scatter baits amongst the rocks and timber. The fumigator also gave excellent results when used in deep burrows. A few days after the burrows had been fumigated it was advisable to go over the paddocks to see if any of the holes had been opened by the rabbits. If that had happened, they should be treated again with the fumigator, or failing that, it was just as well to dig out the holes. By digging out the burrows on the good land, and keeping a watch for a few days to see that the holes were not reopened, much would be done to keep the pest in check. It was advisable to destroy any logs or rubbish in the paddocks, and then the dogs would have a chance to get any rabbits that might have escaped. If the

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farmer wished to clear the land of rabbits, he should realise that the work of keeping the rabbits under control must be constantly and persistently undertaken, and it was the duty of every landholder to co-operate with his neighbor in an endeavor to keep the land clear of the pest.

#### YACKA.

April 10th.

WHEAT VARIETY TRIALS.—Mr. A. O. Badman, who contributed a paper dealing with this subject, stated that for a period of eight years he had conducted experimental work in the testing of wheat varieties. The paper then read as follows:—“Too often one notices the apathy and carelessness shown toward seed selection and purity of seed, apart from the most suitable varieties to grow. This is such that one wonders whether the farmer is out to make the best out of his land or not. Since taking up this branch of farming I have made a number of discoveries which go to show that a farmer must do something more than carefully cultivate his land. He must, in the first place, use care in seed selection, i.e., varieties to grow. He must choose the variety most suitable for his farm, and not rely too much on reports of big yields of certain varieties when grown in other districts which may be altogether different from his own. In many cases farmers secure five or 10 bags of a new variety from another district with a different rainfall and different soil and sow it, with the result that when harvesting is completed they find that they have been losers to the extent of from perhaps 20 to 50 bags of wheat. My advice has always been to try a small quantity—at the very outside not more than three or four acres—before sowing a large area of any new variety. My main object, of course, has been to secure the biggest yielders, but there are other factors which cannot be overlooked. A certain wheat may be a big yielder under favorable conditions, but if red rust should make an appearance, or if a strong wind should occur before that variety is stripped, it may prove a failure. Therefore, one has to put a wheat to several tests before it can claim to be of any real commercial value. This part of the business is now receiving great attention amongst the wheat breeders at the various stations throughout the Commonwealth, and very few varieties leave those stations before they are thoroughly tested. Then, after all, minor weaknesses sometimes show up, and they have to be discarded. Of several hundreds which I have tested, I have about 20 only which I would recommend as varieties which are fairly free from disease and defects, and I have compiled a table of returns for these. During the whole period of testing I have grown three old standard varieties in check plots. These are Yandilla King, Federation, and Marshall's No. 3. Whilst those retained may have a few minor defects, I have discarded a considerable number for very bad weaknesses, amongst them being Florence, Queen Fan, and Gluyas. Though these may give good yields under favorable conditions, they cannot be described as good wheats to grow. As stated above, many wheats have defects, but those which have the least I have retained. You will note by the table of yields that Major has given the highest yield. This has been the most consistent of all, the only slight defect noted in this variety being that of flag smut, or what is commonly known as black rust. Joffre runs second, but is a better yielder than Major on the lighter and poorer soil. Federation and Currawa follow, with Federation a pound to the acre to the good. Federation would have shown to better advantage had it not taken rust during 1921, when it only yielded 16 bush. 36 lbs. per acre. Currawa and Joffre are somewhat similar in appearance, but Joffre is not so susceptible to bunt or smut as Currawa, and whilst Currawa breaks at the head in a high wind, Joffre does not. The pedigrees of these varieties are as follows:—Currawa—Northern Champion x Little Cretan; Joffre—Red Bordeaux x Yandilla. In grain they are somewhat similar, but while they both have the navel impression, Joffre has a large hump at the back of the grain. College Eclipse has also been a consistent yielder, though not outstanding, and Caliph as an early variety has proved itself, but is rather tough to thresh. Of the newer varieties which have had from two to four years' trial, some promising yielders are to be found, but Gallipoli, this year's winner, is too tough for ordinary purposes. Minister seems to have done better in plot trials than under larger areas, and is not very suitable for the poorer soils. Felix and Sultan, as forecasted, have given good yields of both hay and grain, and should

prove useful varieties in the future. Gallipoli, though a good yielder, is very tough to thresh; perhaps that was the reason it topped the yields last season. The Werribee Research Farm field officer has a strain of Gallipoli which is much easier to deal with, and promises to supersede the older strain. L x 9, L x 10, L x 11 are new from Longerenong, and are amongst the most promising of the latest importations to this district.

*Table of Yields and Averages over a Period of Eight Years.*

1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.	Means.
B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.
				Major.				
47 3	44 2	38 40	39 3	39 18	29 24	25 38	34 19	37 3
				Joffre.				
45 10	37 29	36 15	30 14	35 44	27 55	24 1	26 26	34 9
				Federation.				
37 29	34 24	31 26	29 17	29 12	28 34	16 36	26 14	29 9
				Currawa.				
34 21	33 19	30 28	35 20	25 0	25 35	21 10	27 52	29 8
				College Eclipse.				
26 50	26 20	31 7	19 39	36 16	25 25	27 30	30 16	29 6
				Golden Return.				
37 12	38 8	29 12	24 38	29 20	21 31	25 24	25 55	28 35
				Hard Federation.				
29 6	33 30	30 42	22 30	31 13	25 40	29 30	28 53	28 53
				Caliph.				
38 8	26 4	25 14	22 24	39 0	26 18	29 36	24 1	28 50
				Marshall's No. 3.				
30 24	29 20	26 16	29 0	35 4	25 45	22 47	31 45	28 45
				Yandilla King.				
26 36	31 32	27 18	25 42	34 14	24 25	22 13	30 21	27 45
				Dart's Imperial.				
33 34	32 6	31 8	30 0	25 20	23 26	19 16	23 14	27 16
				Queen Fan.				
30 0	30 48	24 19	26 14	29 20	20 18	Discarded		26 49
				Warden.				
27 0	28 40	23 25	19 10	31 16	21 17	29 20	33 0	26 38
				Zealand Blue.				
22 6	27 0	24 40	25 12	33 36	20 14	16 8	17 7	24 30
				Florence.				
22 7	24 14	23 12	12 30	29 54	21 18	Discarded		22 12

*New Varieties with Two to Five Years' Trial.*

	1918.	1919.	1920.	1921.	1922.	Means.
	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.
L x 9 . . . . .	—	—	—	34 16	37 32	35 54
Sergeant . . . . .	—	—	42 30	30 34	34 40	35 52
L x 10 . . . . .	—	—	—	34 17	36 53	35 34
Inderet . . . . .	—	—	37 16	32 16	37 7	35 33
L x 11 . . . . .	—	—	—	35 15	33 49	34 32
Colonel . . . . .	—	—	39 25	27 18	34 53	33 52
Gallipoli . . . . .	—	32 41	29 20	27 21	41 29	32 43
Brevet . . . . .	—	—	36 30	31 21	30 0	32 37
Indian H. x Telfords . . . . .	—	—	31 30	31 15	29 7	30 38
Minister . . . . .	29 43	38 57	26 50	25 16	28 37	29 53
Sultan . . . . .	—	27 16	28 20	23 36	36 9	28 50
Standation . . . . .	—	—	29 11	23 17	31 47	28 15
Felix . . . . .	—	26 14	23 36	21 15	31 47	24 18



**BUNDALEER SPRINGS, April 30th.**—Mr. J. Gerke read a paper, "Irrigation," in which he referred to the advantages that were to be obtained from the irrigation of crops, &c. He strongly advised all farmers to try irrigation, even if only on a small scale.

**LAURA, April.**—A member read an article from the *Journal of Agriculture*, and an interesting discussion followed. Several subjects of local interest were also brought before the meeting.

## LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

### BLACK SPRINGS.

May 1st.—Present: 21 members and five visitors.

**MERINO SHEEP.**—"Those of you who read the *Journal of Agriculture* will have noticed the tendency of many writers, in dealing with sheep breeding, to advocate cross breeding with Merino sheep. In certain districts this may be all very well; but, nevertheless, it is a pity to see the Merino used for cross breeding in districts similar to ours." Such were the opening remarks of Mr. K. Dunn, in a paper under the above heading. Age for age, the crossbred lamb scored over the Merino; but the difference in the yield of wool had to be taken into account. His experience with the breeding of Merinos went to show that the lambs should be dropped about April, and shorn during September. Any wether lambs or lambs that had been drafted for sale should not be weaned, but it was advisable to wean the ewe lambs some weeks before the rams were placed with the breeding flock. If that were done, an early lambing the following season should be the result. For breeding purposes, one paddock, free from stinkwort, but containing good food and water, should be held in reserve for the lambing season. He was afraid that the percentage of lambs raised during the present year would be very low, owing to the depredations of foxes. If every landholder made it his duty to dig out the holes and distribute poisoned baits there would not be any great losses of lambs in that direction. When a sheep was killed for household use, two or three pieces of meat should be sliced from the shoulder or leg. These should be cut into small pieces, and as much strychnine as would lie on a threepenny piece should be inserted into each piece of mutton. A trail should then be dragged over the places most likely to be visited by the foxes, and the baits distributed behind rocks and bushes. The baits should not be distributed too early in the evening, or there was a possibility of their being picked up by birds. Referring to the erection of fences, the speaker said he had found that long strains were to be preferred, because they kept the wires strained tightly for a considerable time. Struts and props at the posts erected in the corners of the paddocks and for supporting gates should not be overlooked.

**CLARE (Average annual rainfall, 24.30in.).**

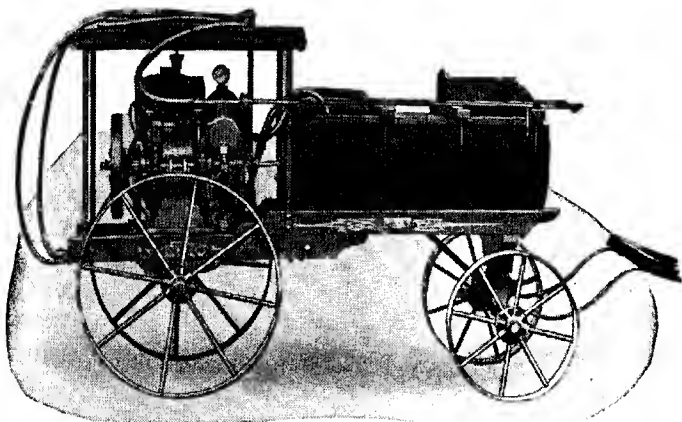
March 2nd.—Present: nine members.

**EARLY CULTIVATION.**—Mr. J. Hamlyn contributed the following paper on this subject:—"The cultivation of the soil was man's first calling, and it has been his most important work through the ages. Unfortunately, in comparison with other avocations, it is not held as highly as it should be in the general esteem of the workers of the world, due, no doubt, largely to the fact that the producer himself does not at all times put that interest and consideration into his honorable calling that he ought. I claim that more thought and study should be put into the business of soil cultivation than obtains to-day, and with this in view, I consider that more time should be devoted to the study of botany in our schools. I feel sure that our teachers would hail with delight the substitution

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of this subject for some which are only brain teasers, and which carry with them no absolute advantage to those whose time is devoted to the study thereof. The cultivation of the soil demands the exercise of both brain and muscle if success is to be achieved. A knowledge of plant life and its requirements should be a first consideration. If we go fully into this matter, we will find that some soils are fit for one class of plant, and that plant only. Thus, as gardeners, we have discovered that some of the soil in this district will produce one kind of tree with satisfaction to the gardener, whilst another tree planted in the same or like situation will be a failure. My first point, therefore, will be the selection of the plant for the soil to be planted. The second point will be the cultivation required, and it matters not what has to be planted, it will always be found that to fallow and thoroughly cultivate the soil before planting will be the surest road to successful cultivation. Soil will naturally grow weeds, and their extermination is necessary first of all. With this object in view, the land should be well ploughed not later than the middle of October to a depth of about 5in. or 6in. Where the subsoil will permit, if required for cereals, the deeper the land is worked the better it will be. The deeper it is worked the deeper will the plant root itself, and so be the better able to resist a dry spell. The deep-rooted trees are those which to-day are showing the least ill-effects of the summer weather, notably the pear trees. The ploughing finished, the harrows should then be put into use. In fact, I would strongly recommend that the harrows should follow not more than three days behind the plough. This would break any clods, and leave a good top for the after cultivation. I consider that the land will be the better for being disturbed every three weeks, if possible, or at most four weeks, during the months of November, December, and January. This will have the effect of destroying all weeds, as well as maintaining the producing qualities of the land by exposing the soil to the effects of the sun, and at the same time encourage the retention of moisture, thus helping on the work of early cultivation. The land thus thoroughly cultivated should be ready to be planted. I would not plant seed prior to a fall of rain, much preferring to sow as soon after a good fall as possible. Land that is sown before rain is apt to crust, and thus prevent the newly germinated plant getting through the surface. Cereals grown as a main crop should not be planted till after a fall of rain has resulted in the growth of weeds. Should both the cereal and the weeds germinate together, there is a strong probability that the cereals will be choked by the weeds. It is very rare that an early sown crop equals one sown, say, about the middle of May. The last harvest proved that the early sown did not produce like the later sown. As gardeners, one of our difficulties is that of growing feed for our stock during the winter and very early spring. Among the seeds recommended to meet our requirements in this respect I may name barley, oats, clover, Italian rye grass, lucerne, and prairie grass. I have every confidence in the latter, as being a grass that will flourish almost the whole year round. It needs well-worked soil, and should be planted about 3in. or 4in. deep. This grass will produce good early growth, and will continue to do so right through the spring and summer. I am of opinion that this, with Poverty Bay perennial rye grass, 1bush. each per acre, sown on waste land used for grazing, will ensure a good feed for stock at all times if fed in reason. It would be better to have an acre or two subdivided into three or four small paddocks, rather than to have only one paddock. By so doing the cattle would graze a part whilst the remainder would be replenishing; and this rule would apply equally to every class of fodder sown for grazing. Whatever class of seed has to be sown, too much importance cannot be placed on the need of careful cultivation, one acre well cultivated being superior at all times to two badly worked and ill-cared for. With regard to fruit and other trees, an early planting is to the grower's advantage, provided that the land is well worked and the trees are not planted in holes; but where the ground is thoroughly ploughed and subsoiled, the trees are the better for being planted early, say, at the end of May or the beginning of June. Young trees, when moved from the nursery in June, have been found to have begun a new year's growth of root fibre. Such being the case, the tree that is planted early has a good growth of root before the leaf buds appear, and the result must prove beneficial to the general growth in the spring. In conclusion, let me again remind you of the fact that plant early or plant late, the success of such planting will depend very largely on the methods adopted for cultivation both before and after planting."—A general discussion followed.

## LONE PINE.

May 5th.—Present: 10 members.

**SUITABLE WHEATS FOR THE DISTRICT.**—In the course of a paper dealing with this subject, Mr. F. Schulz stated that Bay of Biscay soil in their district was not suited to wheat-growing. On such land it was advisable to grow crops of hay only. For hay-growing on good fallow land he selected the following wheats:—Le Huguenot, Leak's Rust Proof, White Essex, Crossbred 53, and Marshall's No. 3. All those varieties should give a 3-ton crop in an ordinary year. If it was desired to improve the weight and quality of the hay, he suggested a mixture of 1bush. of Le Huguenot, 1bush. of Leak's, and 1bush. of Algerian oats. Dealing with grain suited for ploughed land or land scarified before seeding, the speaker expressed a preference for any of the King's varieties of wheats and Florence. On a good red soil, well fallowed, seedling wheats, such as Crossbred 53, Turley, Late Gluyas, Tuscan, and Marshall's were favored for grain. For land that had only been ploughed the speaker recommended Federation, Early Gluyas, and Sydney Purple.

## NANTAWARRA (Average annual rainfall, 15.90in.).

April 26th.—Present: eight members.

**QUESTION BOX.**—In reply to a question, "Is it harmful to work fallow whilst in a dry condition if weeds and rubbish do not have to be destroyed?" Mr. R. Uppill said that under such circumstances a light working of the land with a spring-toothed implement or a set of harrows would be beneficial and help to prevent drift. Mr. A. F. Herbert was not in favor of the practice, although he recognised that with repeated cultivations one was able to check the drift to a considerable extent. Mr. C. G. Nicholls, in dealing with the question, "Which is better—to sow oats and barley before or after rain?" said he always put a piece of land under oats and barley, and sowed the seed before rain had fallen. In the first place, oats required a fairly long growing period, and when those two secondary cereal crops had been dealt with the farmer was able to devote the whole of his attention to drilling in the wheat. Mr. G. Herbert asked, "Does any great loss occur at harvest time if the seeding has been a late one?" Mr. R. Uppill, in replying, considered that seeding could be completed in about six weeks, and that should not result in any great loss. The two important points that should concern the farmer at seeding were (1) destroy all the weeds and (2) get the seed in as soon as possible.

## OWEN.

April 27th.—Present: 15 members and visitors.

**IS IT ADVANTAGEOUS TO GROW OATS AND BARLEY AS CATCH CROP AFTER WHEAT?**—Mr. C. L. Marshman, who contributed a paper dealing with this subject, said the growing of barley and oats after wheat was to be recommended, not only from a financial point of view, but also from the fact that that practice helped to improve the soil. Barley if sown on fallow land grew very rank, and the heads were liable to break off. On stubble land, following a crop of wheat, it was quite possible to harvest up to 30bush. of barley to the acre, and that, at 3s. per bushel, was a very payable return from a catch crop. Growing barley on stubble land did not involve a great deal of labor; all that was necessary was to cultivate the land just before seeding. The land could then be left until after wheat cropping, when the barley could be put in with a combine and harrowed. Barley impoverished the soil to some extent, but the plant did not seek very deeply into the soil after its food. He did not think it advisable to fallow the land immediately after it had carried a crop of barley. It should be left out for pasture, because the season after the barley had been taken off one could rely on securing a good paddock of early feed. It was also noticeable that after a paddock had grown a crop of barley there were not so many weeds on the land. As a catch crop, he considered that oats were without an equal, and they could be grown quite successfully on land which the previous season had carried a crop of wheat. When oats were sown on fallow land they grew very luxuriantly, and were

liable to break off or go down, so that they were most difficult to deal with at harvest time. He was of the opinion that a crop of oats added at least 6 bush. of wheat to the acre when the land was sown with that cereal—say two years later. It was possible to grow a crop of wheat, burn off the stubble, and then put in a crop of oats. Next year the paddock could be fallowed, and that could be sown with wheat the next season, and then carry another crop of oats the following year. That system of rotation could go on for a number of years, without doing the land any great harm, provided a good rainfall was received. In his opinion it was better to crop a paddock with oats, rather than allow it to lie out as pasture for 12 months. His practice was not to cut hay on fallow land, but to grow all the fodder that was required for the stock on the stubbles. In the discussion that followed Mr. H. Bowyer thought barley was a good standby, because all classes of stock, and particularly cows, could be fed on it profitably. If all stock feed could be garnered from catch crops, all the fallow land could be devoted to the wheat crop, and the farmer's revenue would also be increased. Mr. H. S. Harkness said the most satisfactory method of dealing with barley was to cut the crop before it was thoroughly ripe. It should then be stooked and thrashed out of the stook, or stacked and thrashed at a convenient time. He preferred sowing oats and barley dry because that did not interfere with the sowing of the wheat crop when rain fell. Mr. W. J. Marshman said the farmer could not make interest on the present value of the land, when only one crop of wheat was grown in three years. He thought it advisable to turn the catch crops into meat, when there was a poor demand for that type of cereal. Lachlan and Early Burt oats were recommended for hay by the speaker.

#### ROSEDALE.

May 1st.—Present: 14 members and two visitors.

DRY SOWING.—Mr. H. Nettlebeck read the following paper:—"Under the present dry conditions almost every farmer asks himself the question: 'Shall I start sowing?' Some are in favor of dry sowing and others are not. If the rain hangs off too long, one is compelled to start, and in such cases a start is generally made on the piece of land most suitable for the purpose. When choosing this piece of land there are two points to consider:—(1) Land free from weeds, and (2) nature of the soil. In the first instance, it is very hard to find a paddock free from weeds in this district, no matter how well the fallow has been worked, the most troublesome plant being the wild oat, but this being mainly a hay-growing district, the crop can be cut for hay in the event of it being too dirty with wild oats. There are other weeds, such as mustard, poppy, and three-cornered jack, which are a nuisance in hay or wheat. If the land consists of black or stony rubble soil, it is quite safe to sow dry, so far as the setting of the soil is concerned. But if the farm consists of red land there is a danger of the earth setting down so firmly that when the wheat germinated it cannot come through the soil. If rain continues to fall at intervals of a few days, the young plant will find its way through while the surface is soft, but if after germination the land becomes hard, the plant will turn back under the surface crust, go yellow, and die. Where the land settles down to such an extent harrowing should be undertaken, but the harrows must be very sharp and perhaps weighted according to the thickness of the crust of the soil. Harrowing at this stage is very difficult in patchy land, because in places they go too deeply, in others not deep enough. Going over the land with the cultivator can also be practised with very good results. It is also necessary to consider whether there is sufficient moisture in the ground to start germination. If that is so, there is the risk of the wheat coming up in patches, and if no rain falls, a patchy crop will be the result. Then there is the risk of a fall of 20-30 points of rain—just enough to start germination, and the weather then keeps dry for weeks, which results in the death of the young plants and makes it necessary to resow. It is my opinion that when the wheat is sown dry the seed should not be pickled, because untreated grain will keep for a longer period in the ground. On one occasion when I sowed dry and used pickled wheat, a few points of rain fell—just enough to reach the grain and dry out again. A blue mould developed around the grain, which crumbled up when touched with the hand,

whereas wheat sown untreated was not affected. My advice is: Wait until the end of April, and then if you have suitable land make a start, because I have seen some very good crops, the result of dry sowing."

Mr. V. Hocking then delivered an address, "Increase of Lambing."

#### SADDLEWORTH (WOMEN'S) (Average annual rainfall, 19.60in.)

May 8th.—Present: eight members.

**ELECTRICITY ON THE FARM.**—The following paper was read by Miss Coleman:—  
 "Electricity is the cheapest, most adaptable, and most convenient power obtainable. The highest expense is in the generating and installation. To generate power the cheapest method is to utilise a river or lake. This has been done all over the world, and very high power stations have been established. At the Great Lake, in Tasmania, a big station has been built, and heavily charged current is carried by wire many miles, over valleys and mountains, to Hobart and towns surrounding the lake district. There is a huge plant at Buffalo, in America, where water power is obtained from the Niagara Falls. With great water supplies like these, it is easy to produce a very high voltage at a small cost; but where engines are employed, the cost is much greater. Coal or coke is used for such engines, though wood may be used. In America farms are gradually being fitted out with electricity, and power plants can now be obtained for small farms. More towns are being fitted with electricity, so that outlying farms can obtain their power through wires for several miles. In Denmark, wind-mills are used for generating the power, petrol engines being employed in quiet weather. Variations of speed are regulated by the dynamo, so that electricity can be formed so long as there is enough wind to turn the mill. When once the method of obtaining power is settled, the cost of upkeep is reduced to the minimum, making electric light and power the cheapest obtainable. The Danes are quiet and thrifty people, and make use of time and labor saving devices, electricity being among the most favored. Large and even small farms are fitted with power plants, the power in most cases being generated by wind, a storage capacity of four or five days practically guaranteeing a continuous supply. No other power can be conveyed in the same manner as electricity. As in the example of the Great Lake electrical works, a distance of over 50 miles is crossed by extremely heavily charged wires. Mountains are passed over, many streams (the greatest being the River Derwent, near Hobart) are bridged, and the power supplies works of all descriptions and hundreds of homes in towns and surrounding districts. When the power arrives at the works, house, or farm, it is there sent along numerous smaller wires for lighting, heating, and power purposes. There is no more convenient power for lighting than electricity. The switch at the door, just the right height, and quite artistic if desired. No more candle grease dripping on the carpet, or sudden darkness if a gust of wind comes in at the window as the door is opened. Electric appliances can be divided into three sections:—Labor savers—Electric iron, suction sweeper, clothes washer, sewing machine, dish washer, ironing machine, electric stove, utility machine, refrigerator, fireless cooker, electric driven milking machine, separator, butter churn, scrubbing machine, floor polisher. Household conveniences:—Electric fan, radiator, toaster, percolator, tea kettle, table stove. Personal comforts:—Heating pad, curling iron, immersion heater, massage vibrator, hair dryer, milk bottle warmer, electric candlesticks. This list gives some idea of the numerous uses to which electricity may be put. Most plants will, in all probability, be installed for lighting purposes primarily, and before installation there are several points to be considered. The lamps should be placed so that most light is thrown where most light is needed. For example, in the study there should be a table lamp or wall light near the desk; the piano should be lit by wall light or ceiling lamp near to it. It is best to put the full number of lights and switches in with the first general installation, because it costs but little more at the time, and additions will be a big expense and bother later on. The utility motor is run by the usual power of lights, or plugs for irons, &c. It is attached by cord, and stands about 2ft. high on three legs. It can be carried around the room, through the window from room to room, or to the barn or washhouse, and will run small machines, such as sewing and washing machines, wringer, separator, churn, and grindstone.

In the kitchen it does those irksome though not hard tasks such as grinding coffee, mixing bread, and sharpening knives. Electricity saves the busy housewife much time and energy. In the laundry, with the help of the utility motor, the clothes nearly wash themselves, and with the electric ironer and iron for other than flat goods, the work will not be nearly so strenuous. Much precious time is saved in the kitchen with the electric stove, dish washer, and refrigerator, and in the house with the vacuum cleaner, scrubbing machine, and floor polisher. The farmer himself will reap the benefit of power for his water pumps, chaffcutters, circular saws, wheat cleaners and graders. The farmer's wife will appreciate electrically run milking machines, separators, and butter churns. Incubators have also been run by electricity. Lights should be placed wherever lights are needed. Each room, pantry, passage, cellar, dairy, and verandah should be well supplied with lights. The barns, chaff, cattle, and horse sheds should be lit up. In Denmark even the pigsties are illuminated."

#### WILLIAMSTOWN (WOMEN'S).

May 2nd.—Present: 21 members and two visitors.

**MELTING WAX.**—In the course of a short paper on this subject Mrs. G. Hamilton said that to clean cappings after the honey had been drained off, it should be soaked for two hours in cold water and then shaken well and allowed to drain in order to remove all the water. Next it should be placed in a benzine tin and covered with water, and allowed to stand on a slow fire until thoroughly melted. Finally, it should be strained into a dish larger at the top than the bottom, so that the wax would slip out easily when cold. It was important to place boiling water in the dish before using it for the wax.

#### WINDSOR

March 6th.—Present: 11 members and visitors

**RABBIT DESTRUCTION.**—A paper was read by Mr. R. Williams. He said:—The best time to destroy rabbits is early in the year; before seeding; if left later the number of young makes trapping very tedious. The best method of destruction, where they are in large numbers, is poisoning, either with the bait or pumping gas into the warrens. Where rabbits are not found in very large numbers, trapping is the usual means employed for their destruction. This is greatly helped by clearing away anything that will harbour them, and filling in the burrows. If these are filled in and traps set at the warrens that are scratched out, rabbits are quickly destroyed. Pumping in poison gas also gives good results, although one drawback to this method is that it is impossible to get the skins.

**SIDE LINES ON THE FARM.**—In the course of a paper on this subject, Mr. N. Bates said:—Successful farming should include the keeping of such side lines as sheep, pigs, cows, and poultry. Sheep, apart from being a most profitable side line, were a most necessary item in successful wheat growing. They were able to deal with the weeds on fallow land, and so convert such rubbish into valuable mutton and wool. Great care, however, should be taken not to tax the farm with more than its carrying capacity. He preferred the Merinos for wool, and for fat lambs, favoured a ewe of that breed crossed with a Shropshire ram. To ensure a good lambing, not more than 40 to 50 ewes should be mated with each ram. The rams should be taken from the flock during March. To reduce the trouble with blowflies to a minimum, the ewes should be crutched in April, and close attention was necessary to the flock during lambing season. It was also advisable to provide a clean yard for freshly tailed and marked lambs. The cow was also a necessity on the well managed farm, but the speaker considered that the number that were to be kept should be governed by the labour that was available, and the size of the holding. If several cows were kept, then a few Berkshire pigs would add to the revenue of the farmer. For a bacon pig, he favored the Berkshire-Middle York cross. Fifty to 70 good laying hens should be kept, and if provided with a place of shelter, and given proper care, would prove a very profitable side line on the farm.

## WINDSOR.

April 3rd.—Present: 15 members and one visitor.

**DRILL VERSUS COMBINE.**—The meeting took the form of a debate. The advantages of the drill and combine were discussed. Mr. Prince said he preferred cultivating the land, and then using the drill a few hours after the cultivator, according to weather conditions and the moisture that was in the soil. The harrows could then be used two or three days behind the drill. He thought that would result in a better job than by using the combine and harrows, because, in addition to making a better seed bed, it killed more weeds by moving the ground three times as against moving it twice. Up till the present the users of the combine had been favored with two or three splendid seedings, rain falling almost consistently throughout the seeding. If a seeding time occurred similar to that four years ago, he thought the users of combines would be in a sorry plight.

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At that time rain fell, which enabled the farmers to commence seeding; that was followed by a very heavy downpour of over 2in.; immediately following that there were three or four exceptionally heavy frosts, which, following the heavy rain, caused the land to set very hard, with the result that the harrows had to be weighted down to break the crust that had formed. He had 100 acres, which was sown shallow with 1½bush. of seed to the acre, which went through those weather conditions, and in order to break the crust he had to harrow the land twice, after which only about 50lbs. of seed to the acre came up. In a weedy paddock a combine would have to go from an inch to 2in. into the soil to cut the weeds, with the result that the seed was sown at the same depth. If a paddock was sown thus, and weather conditions were experienced similar to those four years ago, the result would be a poor germination, and the plants which came through would be weak. Mr. H. Williams said the drill did not bury the seed and superphosphate so deeply as the combine, and if the latter was used there was a tendency to make the one operation do, when more cultivation would clean the land of weeds and retain the moisture. It was also a slower process in sowing the seed, because a four-horse team could be changed more easily than a larger one. The combine was also a much more awkward implement by the fences and on the headlands, and if used as a cultivator would be left out at the mercy of the weather and stock. Mr. Schlodder supported the use of the combine. If that implement were used, he said, it would obviate the necessity for employing an additional man at seeding time, and also the use of three or four horses. Last year he used seven horses in a 20-hoe combine, and worked over 25 acres, day after day, thus saving one man's wages and the use of three horses in comparison with the previous year, and sowing seven acres to eight acres more per day. With a combine the seed could be sown either deep or shallow. When the ground was wet it was advantageous to sow shallow; but when the moisture went down, the seed could be put in an inch or so deeper. The combine would also save the expense of a spring-tooth cultivator; it also had an additional row of tines, thus killing more weeds; but the fallow should always be kept clean before seeding time. During the last harvest he used the combine to work the fallow after heavy rains, and completed up to 40 acres during the long summer days, and the fallow he went over at that time was now practically free from weeds without any subsequent working. He thought that if a person once used a combine he would not use the hoe drill again. Mr. E. Williams considered the combine implement a great saver of time and wages, because one man could do the work of two with two less horses. There was also the advantage of the seed and manure being scattered and not left in drill rows 7in apart. He further thought that if a combine was used during seeding for four or five days, and the ground was then worked with a set of harrows, all the small weeds would be killed and a good seed bed left. All that work could be done with the same team, and one man could do most of his seeding. During the discussion which followed, the supporters of the drill contended that when dry periods occurred during seeding time, and the operation had to cease temporarily, the cultivator could be kept going, and when the rain came, and the soil was in a condition to receive the grain, the drill could be used. The supporters of the combine claimed that the soil which was cultivated could not be drilled after a heavy rain so as to make a good job without being cultivated again, because the soil would be set together too firmly. The members thought the best kind of combine was the one in which the drill could be detached from the cultivator. With that type the grain could be sown at a different depth from the depth of cultivating.

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BLACK SPRINGS, March 27th.—Before a well-attended meeting, 36 members and 29 visitors, the Government Poultry Expert (Mr. D. F. Laurie) delivered a lecture, "The Poultry Industry." Musical and elocutionary items, followed by supper, concluded an enjoyable and instructive evening.

CLARE, April 27th.—Mr. F. Victorson gave a short address, in which he related some of his experiences during the past season. During April he had broadcasted field peas over his vineyard. In the spring the cover crops had

been broken down with harrows, and two furrows had been ploughed between each row of vines. An application of 1½ lbs. of bone-dust was then made to each vine. The land was cultivated after every rain, and Mr. Victorson stated that he expected to gather about 14 tons of currants off nine acres. He had not noticed any difference between the vines that had been encircled with the knife and those that had been treated with the saw.

LONE PINE, April 14th.—The meeting took the form of a "Question Box," when several items of local interest were brought before members for discussion.

LYNDOK, April 26th.—The delegates to the Conference of the Lower North Branches gave a report on the proceedings and the gathering. Other matters, including farm and crop competitions and 1923 Farmers' School at Roseworthy Agricultural College, were also brought forward for discussion.

MAILLALA, April 16th.—The Government Poultry Expert (Mr. D. F. Laurie) attended the meeting and delivered an address, "The Principles of Poultry Raising."

NANTAWARRA, May 21st.—Mr. G. Herbert read a paper in which advocated the use of fowl droppings for manure for agricultural purposes.

SADDLEWORTH, March 17th.—The meeting discussed matters in connection with the conference of Lower North Branches, also several other items of local importance.

On April 6th the annual report of the Department of Agriculture was discussed, special attention being given to the reports of the Dairy Expert and that of the Turretfield Demonstration Farm.

A further meeting was held on May 4th, when the report of the delegates to the Lower North Conference was received and discussed.

SALISBURY, May 1st.—The subject, "The Divining Rod and Its Uses for Finding Water," was brought forward by Mr. E. Moss, and an interesting discussion ensued.

STOCKPORT, April 27th.—Mr. A. E. Toll delivered an address, "How to make the farm pay," and an interesting discussion followed in which the speaker replied to many questions.

WILLIAMSTOWN, April 27th.—Mr. D. Manser read a paper, "The Necessity for Destroying Rabbits." Also a paper under the heading, "The Best Methods of Destroying Rabbits," was contributed by Mr. W. G. Patterson. An interesting discussion ensued, in which the following members took part:—Messrs. A. Norsworthy, J. Bain, L. Hammatt, W. Wilkin, and G. Brown.

WIRRIILLA, April 28th.—Mr. Moore gave an interesting address, in which he dealt with the experiences he had had in dairying, stock raising, and hop growing in England.

## YORKE PENINSULA DISTRICT.

(TO BUTE.)

ARTHURTON (Average annual rainfall, 16-17 ins.).

April 21st.—Present: 10 members and one visitor.

THE TRACTOR ON THE FARM.—Mr. M. T. Hynes read a paper on this subject, in the course of which he expressed the opinion that where two or more teams were used on the farm, it would pay the farmer to dispose of one team and use a tractor, provided that the land was suitable for a tractor. With the tractor, it was not necessary to rise so early in the morning as was the case where horses had to be watered, fed, groomed, and harnessed. The tractor would work almost continuously throughout the day, whilst the horses had to be fed and rested. Referring to his experience with the tractor on fallow during seeding time, Mr. Hynes said that after heavy rain, it would be necessary to wait a couple of days longer before commencing work with the tractor than with horses. He was convinced,

however, that such loss of time could be made up, because the tractor could be worked in long shifts, and at night if needed. The fallow would also be in better order for seeding, after an extra day or two in which to allow the excessive moisture to soak thoroughly into the soil. For fallowing purposes the tractor could be relied upon to do its work if the land was in reasonable good order. Mr. Hynes did not regard the tractor as being suitable for wheat carting.

MOONTA, April 28th.—Mr. H. J. Cadd read from the *Journal of Agriculture* a paper, "The Farmers' Feathered Friends," and all members present took part in the discussion which followed.

## WESTERN DISTRICT.

### KOPPIO.

March 27th.—Present: eight members and one visitor.

Mr. T. Brennan asked for the advice of members regarding the early and dry sowing of crops for feed. Mr. R. F. Richardson expressed himself as being in favor of the practice, and stated that it was safer to plant oats. He had sown a small paddock with 1½ bush. of oats and 1½ lb. of rape seed per acre. Mr. Richardson said he sowed Sudan grass last spring at the rate of 4½ lbs. of seed and 50 lbs. of super per acre. He advocated sowing Sudan grass on fallow, because the seed germinated after the fallow had been worked. The weeds would be killed, and he did not think that would interfere with seeding operations during the next year. Mr. G. B. Gardner also advocated sowing early and dry for feed, and had grown rape and barley successfully with dry sowing. Mr. V. W. Garduer had observed a practice for several years of sowing barley dry on fallow, feeding it off for several months, and securing good results from the crop at harvest time. Mr. V. W. Gardner then spoke on the rabbit pest, and thought that members should take some definite action to bring about the destruction of the pest.

KOPPIO (Average annual rainfall, 22.40 in.).

May 1st.—Present: 12 members and two visitors.

RESULTS OF OPERATIONS FROM SEED TIME TO HARVEST.—Mr. H. Roberts, in the course of a paper under this heading, cited the dates of fallowing, cultivation, seeding, and harvesting, and quoted the net results from fields worked during the season 1921-22. Calcutta Cape oats had yielded 5 bush. to the acre more than Scotch Grey. Major had returned better averages than any other variety of wheat. It was noted that portion of the fallow land worked with the skim plough in spring gave lower returns than land not cultivated at that time of the year. The speaker favored fallow land in order that the crop might be sown in good time. Wheat sown after the middle of June, 1922, showed a very poor percentage of germination. Care should be taken of the seed wheat to protect it from bleaching and damage by moisture. The writer of the paper favored cutting hay whilst the crop was on the green side. In the discussion that followed, Mr. V. Gardner did not favor working light land that had been fallowed with the skim plough during spring. Such land should be worked with weighted harrows. Mr. Richardson tabled a sample of Sudan grass 15 in. high that had been cut from a plot of 7 acres. The seed was sown on October 1st, but owing to the dry conditions germination did not take place until December. The plot provided excellent feed and five cows had been grazed for a few hours daily for three months. Finally, it was necessary to graze off the grass with a flock of sheep in order to prepare the land for a crop of winter feed.

### LAKE WANGARY.

April 28th.—Present: 11 members.

BARLEY GROWING.—The following paper under the heading "To Grow a More Attractive Sample of Barley on Some of the West Coast Lands," was read by Mr. P. Puckridge:—"In placing this paper before members of the Branch, I

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intend to express my opinion as to why our barley is not reaching the market in a more attractive condition and why it is commanding only a poor price. In the first place, too much care cannot be taken in the selection of the seed. If the growers wish to put the grain on the market as malting barley, then they should endeavor to make it as pure as possible. If the sample contains almost as much Cape barley as malting barley, then the producers must expect to be the losers. To remedy this trouble, I suggest a careful selection of the seed. Good results can be obtained by going through the barley crop just before stripping and selecting the best and purest heads. These could be picked, placed in a bag, and threshed by hand, and should provide sufficient good seed to sow a couple of acres. On this area the harvest should yield 10 bags of pure seed, which during the following harvest would give a large quantity of pure seed, and in every succeeding year you should be able to place on the market a barley true to name, and I am sure you would find a more even sample generally. Further, I would suggest changing the seed. This is, of course, a matter that also needs care, because if new seed is obtained by huying or exchanging with a man who has not selected his seed in a careful manner, then your good work will be wasted. In some instances farmers can effect a change of seed grown on their holdings by growing on the limestone country seed taken from the limestone land. In marketing barley in an attractive manner, the methods of harvesting play an important part. In some cases I think too much of the floors is swept up on the heaps, thereby incorporating a large percentage of discolored barley through the sample. I consider it would be better to leave a little more for the sweepings and make a second sample, or make use of it for feeding purposes. Finally, I am of the opinion that if the grower takes more care in the selection of the seed, sees that the drill and bags do not contain any foreign grain, and exercises reasonable care at harvest time, he will place on the market a superior sample to that being marketed at the present time."

#### LIPSON.

March 31st.—Present: 13 members.

**DRAUGHT HORSES.**—A paper entitled "Draught Horses" was read by the chairman (Mr. S. F. Potter). Mr. Potter described the Shire, Clydesdale, Suffolk, and Percheron breeds of horses, and gave expression to his own opinion on them, formed after having seen them in their native homes. The paper then continued:—"My favorite horse of the four breeds is the Clydesdale. I am of the opinion that it is better suited for Australian conditions than either of the other breeds, being a horse of good weight with great activity. I consider it an ideal horse for South Australian farmers. We need to develop one pure breed of draught horses (as we have with our Merino sheep). There is no reason why we should not breed some of the finest horses in the world. Our climatic conditions are superior to those of England or France. We could well take a cue from the French breeders. The French Government are active in fostering the interests of horse-breeders. Government studs are maintained, in which select animals are kept for breeding purposes. In the case of privately owned stallions, a severe inspection is made by Government veterinary surgeons, and if the animals are found to be of sufficient merit they are designated 'subsidised,' and a cash bonus is paid to the owner for keeping them in the country. Horses that are not quite good enough to be subsidised are designated as 'authorised,' and the owners are given a certificate, which is, in substance, a Government recommendation. There is a third class, which is known as 'approved,' the animals of which are permitted to be in service, but neither a bonus nor certificate is given them. All stallions not coming within these classes are excluded from public service. This system of Government supervision which has obtained in France for a number of years has proved very beneficial. Why should it not be tried here?"

#### MILTALIE (Average annual rainfall, 14.55in.).

April 28th.—Present: seven members and three visitors.

**SEEDING OPERATIONS.**—Mr. C. Deer contributed a paper on this subject, which was read by Mr. D. Bagnell. The writer first referred to the necessity for overhauling the machines used in connection with seeding, and the importance of

sowing that all were in thorough working order. A good supply of hay should be chaffed, and any cocky chaff that was not stored in a shed should be covered with straw. Sheep played a most important part in the preparation of the land, and were very useful in cleaning up the fallow, breaking up the clods of earth, and packing the soil. Any shoots that were growing in the paddocks should be cut and cleared off the land before the commencement of seeding. The writer believed that the combined drill and cultivator would prove a valuable implement for that district, because of the very short season the farmer had in which to do his seeding. It was a good plan to have a small paddock of green feed into which the working horses could be turned at any available opportunity. As a general rule, seeding should not be started later than the first week in May, and the work should be completed by the third week in June. Mid-season and early wheats sown at the rate of 45 lbs. to the acre, with 60 lbs. of super, seemed to give the best returns in that district. The writer expressed the opinion that Florence, Early and Late Glynas, Federation, Currawa, and Major were the wheats most suitable for the Miltalie district. In the discussion that followed, Mr. J. S. Jacobs supported the use of the combined drill and cultivator, and favored sheep on the farm as co-helpers in agricultural operations. Mr. J. P. Story said where the combined implement was employed, it was not advisable to work the land too deeply, because there was a danger of the seed being sown at too great a depth. Mr. W. J. Deer, whilst acknowledging the value of sheep on the farm, thought the stock should be kept off land that was at all subject to drift. Up to the present time he was not very favorably impressed with the combined implement for their district, because of the difficulty presented by large stumps and stones.

## MINNIPA.

May 4th.

PIGS AS A SIDE LINE AND BARLEY GROWING.—Mr. J. M. Head, in the course of a paper dealing with this subject, said now that it was proposed to open a butter and bacon-curing factory at Port Lincoln, it would be necessary for farmers to develop side lines that would help to maintain the factory. He did not advise every farmer to adopt pigs as a side line, for if that were done there would soon be a glut in the demand for pork and bacon. It had always been considered that pigs were too expensive to keep profitably unless run in conjunction with dairying, but for every 6 lbs. of barley fed to the pigs, the animals put on 1 lb. in weight, and a pig when dressed should be worth 6d. per lb., so that for every pound of barley consumed 1d. would be returned, or 4s. 2d. per bushel, which was in advance of the market price for that grain. Barley reaped with an ordinary stripper or harvester would be quite good enough for pig feed, but if the grain was sold for market better work would have to be put into the cleaning of the grain, and it would be necessary to remove all the beards. Another point in favor of growing the barley was that it not only yielded larger returns than wheat, but it also produced a thicker crop of straw, which was readily eaten by all classes of stock. If the stock were not left in the stubble for too long a period, the barley straw would give an excellent stubble burn, which helped to kill the shoots. Pigs also did well if fed on green barley. Mr. R. Hill stated that a very necessary point to consider in supplying pigs for export was uniformity in type and flesh. No better feed could be secured than barley, hence he strongly advised farmers to concentrate their energies on producing an ample supply to fatten the stock, and also to crush the grain before feeding it to pigs.

## McLACHLAN.

May 5th.—Present: nine members and three visitors.

CARE OF THE HORSE.—In the course of a paper dealing with this subject, Mr. W. Hawke enumerated a number of points that should be avoided by the man in charge of the team. In the first place, he said, the teamster should not expect five horses to do the work of four. Long hours should be avoided. For winter operations he favored a day of eight hours, whilst during the summer months the team should be able to do 10 hours each day, with about one and a

half hours for dinner. Time was saved by feeding the horses out of noselbags in the paddock, and if the chaff was damped, a drink in the middle of the day would not be required. The horses should have a fairly large stable yard, so that they could move around when they felt inclined. The team should not be fed more than twice in the stable, and when the harness was removed at night, each animal should be allowed from 25lbs. to 30lbs. of chaff. In the morning another 10lbs. of fodder could be given to the horse, or the amount could be increased or decreased according to the manner in which the night feed had been eaten. The mane should be kept short, because a long mane frequently became knotted and chafed the shoulders. He was of the opinion that grooming was unnecessary in that district; all that was required was to rub the shoulders with the hand before the team was harnessed. A folded super bag should always be worked under the collar; it was an excellent preventive of sore shoulders and doubled the life of the collar. If any horse was ill, it should be given a rest. Only one spare horse for each team should be kept in the stable. Dosing with medicines should be avoided; in special cases of valuable animals the services of a veterinary surgeon should be called in to prescribe a cure. The fodder supplies of the team should not be stinted. For a noselbag he suggested 10lbs. of chaff and 5lbs. of oats. Any of the chaff that remained uneaten could be emptied into the manger in the morning. It was a good plan to sow 50 acres or 100 acres of oats for green feed for the horses, because that assisted in keeping them in good health. Iron mangers with holes punched in the bottom to sieve out the dust, &c., were favored by the speaker. In the discussion that followed, Mr. W. Hayman considered that horses could with safety be dosed by the farmer with homeopathic medicines. Other members thought it was necessary to groom the shoulders of the horses every morning, and to brush the collars to remove sweat and dirt.

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#### ROBERTS AND VERRAN.

April 26th.—Present: eight members.

**DESTRUCTION OF MALLEE SHOOTS.**—Mr. H. Simmons, who read a paper dealing with this subject, said in order effectively to deal with mallee shoots, it was necessary for the farmer to burn the stubbles each year for three or four years. The first crop on virgin land should be wheat, and if a good stubble burn were secured, another crop of wheat could be sown, and the stubble burnt. Oats should be sown the third year at the rate of 40lbs. of seed and about 40wt. of super to the acre. If a running fire were obtained when the third crop had been taken off, the majority of the shoots would be killed. The paddock could then be left out for grazing, and subsequently fallowed. If the shoots were allowed to grow after being once cleared, a good deal of unnecessary labor was involved in clearing the land. He was of the opinion that by continuously burning the stubbles, the shoots could be kept in check and killed. In the discussion that followed, Mr. A. Cowley said if a good burn were secured after the first crop had been taken off, oats should be sown the second year, and the land could then be sown with two more crops of wheat. Land should not be left out for any length of time until it was practically free from shoots. Mr. B. Evans stated that when shoots had to be cut and fire raked, they should be cut early in the season, so that a new growth would commence before the shoots were burnt. Mr. M. Masters agreed that a good fire was the best means of killing shoots. The disc plough could be used to advantage on land that carried a fair amount of broom bush.

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#### SMOKY BAY (Average annual rainfall, 13.06in.).

April 28th.—Present: 10 members and two visitors.

**THE IDEAL FARM.**—The Hon. Secretary (Mr. George Lovelock), who read a paper under this title, said he intended to deal with a holding comprising about 1,800 acres. With the idea of making provision for future supplies of timber, he suggested that about 50 acres of the best of the scrub should be left in a corner of one of the paddocks. A site for the homestead was one of the first

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considerations, and the chosen spot should be in the middle of the block, and if possible on a rising piece of ground. The laying out of the farm was the next point that demanded attention. First of all, several small paddocks of about 40 acres each should be made close to the homestead, and when not under crop, these could be used as grazing paddocks for the cows and idle horses. The remainder of the holding, he thought, should be divided into paddocks of about 100 acres, the long way of the paddock running in an easterly and westerly direction. A race should be run through the block, on to which the paddocks on either side would open. The tendency of the soil in that district to drift made it necessary that a strip of scrub should be left along all the fences. When traversing an east-west direction, the fence could be erected through the middle of the scrub, and when the scrub ran north and south, the fence could be placed on the east side, because the east winds did not cause the sand to drift to any great extent. The boundary fence should consist of good solid ti-tree posts, placed 10ft. to 12ft. apart, with two plain and one barbed wires and 42in. netting. Gates should be made in all the fences, and where any entrance was frequently used, an iron gate should be erected. If expense had to be considered, a very strong and serviceable gate could be made with sawn timber. For gates that were not used very often, light mallee rails could be used. The present-day trend towards the use of large implements necessitated wide openings in the fences, and for that purpose a wire panel alongside the gate would prove most useful. Referring to water conservation, the speaker said until the Tod River reticulation scheme was completed and working, tanks had to be depended upon. Rock surfaces should be utilised for water runs. Every paddock should be supplied with water, or be easily accessible to a supply of water. If a tank were placed in the corner of a paddock, or alongside the fence, it could be utilised by the stock in more than one paddock. If possible, the tanks should be covered with galvanized iron, in order to serve as a catchment, and to reduce evaporation to a minimum. If the tank were built a little above the surface of the ground, it would assist in keeping the drift sand out of the water. A post fence around the tanks was also recommended. The farmer should make an estimation of the water required by the stock on his holding, and endeavor to have sufficient tanks to store a two years' supply of water. The stable should face the west or the north, and be fairly well sheltered, and with the thought of water conservation still in view, the roof should be of galvanized iron. If only one team were employed on the farm, and if the farmer were short handed, a chaffhouse in the form of a chute running the length of the stalls at the back of the manger should be used. In such a case it would, of course, be only possible to use chaffed fodder. Where more than one team was employed, and where it was desired to feed long hay, a chaffhouse at the end of the stable was to be preferred. The floor should be about 2ft. 6in. above the ground, and if the cocky chaff were conserved, it could be housed alongside, with a mixing bin on wheels, which could be filled at a trap door, and thus do away with the bagging of the chaff. By erecting a high shed under which to stack the hay, the work of carting straw for covering the stack would be obviated, and one would again be able to augment the water supply. The implement sheds should be placed at some little distance from the stables, and be backed with an iron on stone wall. The barn should be made mouseproof, and if the floor were built up to about the height of the bottom of the wagon, the seed wheat and super could be trucked straight out of the barn on to the wagon. Due consideration should be given to conveniences in connection with the house, especially did the speaker recommend the laying on of water to the kitchen and washhouse. When circumstances permitted, the installation of an electric light plant would be very much appreciated. From such a plant the washing machine, separator, and other household appliances could be driven.

#### STREAKY BAY.

Present: seven members.

**DESTRUCTION OF FOXES.**—At a recent meeting of the above Branch, a paper dealing with this subject was read by Mr. V. A. Roberts. The speaker stated that a few years ago foxes caused a great mortality amongst his lambs when they were about six months old. In setting out to destroy the foxes, he stated that

he half-roasted a fowl, which, when cut up, made about 30 pieces of meat suitable for baits. Into each piece of meat as much powdered strychnine as would go on the point of the large blade of a pocketknife was inserted. Mr. Roberts stated that at no time did he take any special care as to the manner in which he handled the baits whilst they were being prepared. Baits were also made from choice pieces of meat from a sheep that had been killed. The remainder of the carcass was partly roasted and used as a trail, dragged by means of a chest band and traces attached to a horse. The baits were placed in a satchel made from an old waterbag, and strapped on to the side of the saddle. If a quiet horse was ridden, the person distributing the poison could jump off the horse and allow it to stand whilst setting the baits. That would save a good deal of time, which was most important, because the baits should be set out late in the evening, when the birds were not so troublesome. Out of the 30 fowl baits that had been distributed over a distance of about two miles, a visit to the trail next morning showed that 21 had been taken. Eight foxes were discovered within 100 yds. from where a bait had been taken. Fifty sheep baits were laid, and from these two foxes were poisoned. Within a week seven more foxes were found. On another occasion 16 foxes had been destroyed during one week. It had been argued that the fox did more good than harm, but his experience was quite the reverse. Last year, from 500 ewes he had only tailed 230 lambs, and he attributed that poor percentage to the ravages of the fox.

#### WIRRULLA.

April 28th.—Present: 15 members and two visitors.

FARMING IN THE MALLEE.—Mr. G. C. Dunn, who read a paper on this subject, said the settler should first of all decide on a plan on which to work his holding. If there were any choice in the selection of a block, he favored one with an area of not less than 1,500 acres. The house should be placed as near the centre of the block as possible, providing a supply of water was available. Such a situation would prove of great advantage, because as more paddocks came under cultivation, each could be worked or connected with the house by a race running through the block. It would, of course, mean extra fencing, but if the holding was subdivided into paddocks of 200 acres, the land would be able to carry considerably more stock. A shelter belt of scrub should be left on the north and south sides of the house, and the stables, chaffshed, and hayyard erected about 70 yds. away from the house on the north side. If finances permitted, the stables and shed should be of galvanized iron. He also suggested the erection of a yard built with timbers about 3 ft. 6 in. high, and a rail on top. Two wires should be fixed to the timbers; one inside and fastened to the outer wire. A good gate should be made in the fence, and a small brush shed should be erected alongside as a store for the harness. The implement shed could be made with brush, with forked timbers not more than 6 ft. apart. When the forks were being placed in position, the farmer should not forget to take into consideration the width required by the wagon, drill, binder, &c. A sheep yard built of stakes made a comfortable and safe enclosure. The pigsties could be built in the same manner, and if the animals were given good quarters and fair attention, they would prove a profitable investment. He strongly recommended the purchase of young horses that had been bred in the district. A trap horse should also be kept, because a horse that had to trot in the buggy and work in the team would not prove serviceable for any length of time. He was of the opinion that foals should not be reared until the holding was capable of producing fodder supplies and had a good supply of water. Two cows should be kept, and the calves should be sold or given away. Sheep had of late years proved a most payable proposition for the farm, and the settler would be well advised to make early preparation for keeping a flock. Land in their district seemed to give best returns after it had been under cultivation for some time. From 3 in. to 4 in. seemed to be generally recognised as the most satisfactory depth of ploughing. All wheat should be treated with bluestone prior to sowing, and any wheat that showed signs of hant or smut should not be sown, even in dry weather, without pickling. Varieties of wheat that were known to give good results should

be sown, and the seed obtained from a farmer who was known to grow and produce good crops. Super should be used at the rate of 45lbs. to 50lbs. to the acre. He favored the use of the harvester, because it provided the most economical means of taking off the crop. That machine produced an even sample of wheat, and could be carted from a month to six weeks earlier than grain taken off with the stripper. Mr. Dunn was not impressed with cocky chaff for stock feeding purposes. He considered it was much better to cut two stacks of hay and always keep one on hand. When cutting hay it was an excellent plan to cut one piece of the crop whilst it was green, and the remainder when the grain was fairly firm. The sheaves should be mixed when the stack was being built, and the chaff would be of a good color and excellent feeding quality. Every farmer should make a stack of straw, and if salt was sprinkled over the stack during construction, it could be used for the stock during the cold weather and when feed was scarce. Referring to water conservation, the speaker considered that the method of making tanks by scooping and concreting, as adopted by most farmers, was more economical than the straight-wall process; but if one were able to find clay, or a good water run was available, a week spent in excavating would save a considerable amount of water drawing. When fences were being erected, and providing timber were plentiful, posts 5ft. 3in. in length should be placed 10ft. apart, with a barbed wire on the top of the posts. Boundaries should be netted, the netting strained when erected, and attached to the fence by boring holes through the posts and fastening with pieces of No. 8 wire. Finally, belts of timber should be left through the block. In the discussion that followed, members discussed the best means of dealing with the plant locally known as "roly poly." Some favored dragging up the plants with chains, barbed wire, and sticks, after which they were left to dry and then burned. Others suggested the horse rake, land roller, and a large frame attached to the beam of the harrows. It was generally agreed, however, that the best plan to adopt was to cultivate the land when the plants were young, and run sheep on the land.

#### YEELANNA.

April 28th.—Present: 18 members and five visitors.

**ROTATION OF CROPS.**—The following paper was read by Mr. J. Cronin:—"The time has arrived in this particular district when farmers will be able to grow a rotation of crops, and thereby obtain the maximum return from the soil. By sowing fallow ground with wheat, and the following year with barley, after getting a good stubble burn, a fair return can be secured with a small outlay of labor. Malting barley is the most suitable type to grow, because it yields well, and a splendid sample is usually secured. I would advise growers to leave the stubble ground until after the first rain before cultivating in order to give the weeds a chance to grow, and thereby have a better chance of obtaining a clean sample. Barley straw is also a very good feed for sheep. By drilling oats on the land the following year, a good return can be secured, and this will enable the farmer to carry a greater number of stock on his land. With the present price of wool, every additional sheep per acre means a considerable profit at the end of 12 months. By varying the crops, and always sowing the fallow with wheat, farmers in this district will be able to grow more wheat and also keep a greater number of stock on their holdings."

**BUTLER, April 30th.**—During the course of the meeting, which took the form of a "Question Box," Mr. D. Butler referred to the question of water shortage, and stated that if farmers would only devote portion of the time that they spent in carting water to the preparation of water catchments, much of the work involved in water carting would be saved.

**GREEN PATCH, April 30th.**—Mr. T. Proude reported the loss of a number of young sheep, and expressed the opinion that death was caused by worms. The Hon. Secretary (Mr. R. L. Sinclair) stated that he had noticed worms in the sheep droppings in the early mornings, especially on the camping grounds. Mr. E. Chapman thought it would be advisable to treat the weaners with Cooper's tabloids.

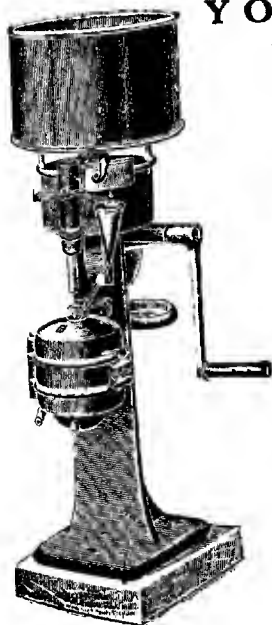
**MALTEE**, April 27th.—Matters of general interest to members were discussed, including the difference in the weight shown on the bags of super and the actual weight when the bag was received by the farmer. One member stated that a difference of from 7lbs. to 12lbs. had been observed in one bag. Several members who had witnessed a field trial of the combined cultivator and drill expressed the opinion that conditions of that district were not yet suitable for the working of that implement.

**PYGERY**, April 28th.—On the occasion of the annual meeting, the Hon. Secretary (Mr. D. M. Heath) presented a report of the work that had been performed by the Branch during the past year, and the officers for the ensuing term were elected. Mr. E. H. Edmunds then read a paper, and an interesting discussion followed.

**SMOKY BAY**, March 31st.—Mr. J. W. Blumson read a paper, "Soil Analysis," which resulted in an interesting and lively discussion.

**TALIA**, April 14th.—Mr. D. McBeath read a paper, "The benefits that were to be derived from the laying of the proposed railway line through the Talia district." A keen and lengthy discussion followed.

**WUDINNA**, May 5th.—The meeting took the form of a Question Box. Several interesting items were introduced, and a keen discussion ensued.



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**YADNARIE, May 1st.**—A plan was drawn on a blackboard by Mr. F. W. Jericho, showing how it was possible for horses to be taken through a fence and at the same time the fence kept sheepproof. The plan showed one panel of a fence and a number of stakes about 8in. apart and 2ft. high driven into the ground. He had found the plan most successful for letting horses into a paddock to water at a dam. Mr. P. Dolling brought forward the question of burning scrub on the roadsides. The general opinion of members was that about 5 chains of scrub should be left close to the drains to prevent them from filling up with sand.

## EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES.)

### HALIDON.

May 2nd.—Present: 10 members and four visitors.

**SEEDING.**—The Hon. Secretary (Mr. L. B. Seymour), who contributed a paper on this subject, said the work of seeding, so far as the careful farmer was concerned, commenced immediately after harvest. All implements should be thoroughly overhauled, swings and chains repaired, super carted, the seed picked and if necessary pickled, in order to enable the farmer to make the most out of the actual seeding period. The selection of the seed was an important factor. For that district he recommended sowings of the following varieties:—Federation, Dart's Imperial, Currawa, Curley's Early, and Early and Late Gluyas. Improved Gluyas had yielded 18bush, to the acre on stubble land in that district. Assuming that the fallow had been worked during the year, it should receive further working immediately after a fall of rain, light implements being worked at a depth of from 1in. to 2in. From 45lbs. to 60lbs. of seed should be sown with a dressing of super up to 1cwt. to the acre. Stubble land should not be worked too deeply, and if a good burn had not been obtained, he favored the use of a disc implement. The land should be worked at a depth of 2in. The amount of seed sown would depend on the variety used and the quantity of grain that had been shaken from the previous crop. An endeavor should be made to make both the drilled-in seed and self-sown grain come away together. He was of the opinion that many farmers in the Halidon district made the mistake of working new land too deeply. He considered that new land should be worked as lightly as possible, and sown early in the season with 30lbs. to 35lbs. of seed and 90lbs. of super to the acre. The question of early or late sowing was one that had to be left to the discretion of the farmer, because with early sown grain there was a danger of light rains falling, which caused the seed to germinate, and if that were followed by a dry spell, the seed would malt in the ground, and there was also a danger of the crops being affected by frost. With late sown crops there was the probability of the plants not growing sufficiently high in a dry year to enable them to be reaped a harvest time. His practice was to plough as much land as possible beforehand, and after the first rain, push on with the work of drilling. Every care should be taken of the horses. They should be well fed at regular intervals and groomed every day. A sharp look-out should be kept for sores on the shoulders, and every endeavor made to remove the cause of irritation. In the discussion that followed, Mr. P. Clonan suggested that fallow land should not be worked until the weeds commenced to germinate. Mr. C. H. Russell agreed with Mr. Clonan, and favored growing mid-season wheats on new land. Mr. H. Bird mentioned that Yandilla King had given him the best results on new land. Mr. L. von Doussa said the implements should be overhauled immediately they had finished work for the season. Mr. Braithwaite was not in favor of sowing Federation wheat, because it was subject to frost, and the stubble was very hard to burn. Mr. L. Burnard suggested Baroota Wonder for that district, especially for a hay crop.

## MARAMA.

April 30th.—Present: 15 members.

**LAYING OUT THE HOMESTEAD.**—In the course of a paper dealing with this subject, Mr. W. S. Gray said in most of the mallee districts the holdings were large, so that the first thing to do was to select a site as central as possible for the homestead, in order to minimise the time taken up in travelling to and from work. In addition to the above the site should be a piece of rising ground, so that the water would drain away from the house and yards. One should not build on "limestony" ground. If that were done considerable difficulty would be experienced in sinking post holes for the yards and sheds. It was a good plan to leave a patch of scrub, say, about 15 acres in extent, around the homestead, to provide shelter and breakwind. The land in their district, when properly cleared, would drift badly if all the scrub was cleared away. In the centre of the patch, three acres or four acres of scrub should be rolled down for the various buildings. The practice of building the house with the front facing the road was usually adopted, but for comfort, the back of the house should face the south. The back rooms were the ones in which the women spent most of their time, and such rooms should be the coolest in the house. The stable should be at least three chains from the house, and facing either to the east or the north. A stable with a straw roof was the best; it was warm in the winter and cool in the summer. Because natural timber in that district was not suitable for building, a straw roof and an iron stable would be the cheapest. The stable should be built to accommodate 10 to 12 horses comfortably, and it would also be advisable to provide a loose box at one end, in which to wean foals or care for a sick horse. The chaff house could be built at the other end of the stable. He suggested placing the water in a yard off the main stable yard, the trough being placed in the fence, with a stout rail over the centre, high enough to enable the stock to get their heads under it to drink. The trough should be placed in such a position that the stock outside could drink without having to go into the horse yard, whilst the horses in the yard could be watered without any fear of their running away. The bore could be put down on the top of a sandhill. That would obviate the necessity for a tank stand, because sufficient pressure would be obtained to carry the water by a main pipe to the house. The stables could be served with a branch line of piping. The main pipe to the house would enable the farmer to devote a plot of land to a vegetable and flower garden. The barn and men's room could be built together, a fair distance from the stable. The machine shed and blacksmith shop could also be erected together, so that the machines could be repaired under cover. The pigsties should be kept well away from the house. These could be made with stump walls, high enough to prevent the pigs reaching the top. A small room with a straw roof could be built with stumps, in which to keep the feed for the pigs. If a fair number of pigs were kept, a yard with a stack of straw in it should be provided as a place for exercise for the animals. The cowyards could be placed somewhat nearer to the house than the stables. The poultry house should be on the opposite side of the house to the stables, in order to prevent the fowls roosting in the sheds. In making the yards the farmer should endeavor to secure good gum posts or Murray scrub pines. During the slack time of the year a piece of land should be prepared, and a suitable variety of fruit trees planted. Finally, a number of sugar gums should be planted around the house. The trees would add to the appearance of the holding, and enhance its value very considerably. An interesting discussion followed.

## MONARTO SOUTH (Average annual rainfall, 14in. to 15in.).

April 28th.—Present: 17 members and visitors.

**PREPARATION FOR SEEDING.**—Mr. G. Patterson, who contributed a paper dealing with this subject, stated that the implements necessary for seeding should be overhauled and placed in thorough working order, so that the grain could be sown without loss of time directly the rain commenced. Next, it was important that the teams should be in good heart to carry on with the work. Horses that had been grazing in the stubbles should be given a small feed each day for some little time before being placed in constant work. Any young horses that had to be

very satisfactory results. Mr. G. Lewis had tried manure for two years, but had found no difference in the yields. His brother had put bone super on the patch and received 10 more buckets, but the next year was a loss, five buckets less being received. Mr. W. Green considered that cultivation had a greater influence on the crop than manuring.

#### YOUNGHUSBAND.

April 26th.—Present: eight members.

TOWN v. COUNTRY.—Mr. S. C. Mann contributed a short paper dealing with this subject, in which he deplored the drift of the young folk to the city. He thought that if the young people were given more ways of enjoying themselves occasionally, such as Saturday afternoons off for football or cricket, and more social events, it would tend to keep them at home.

POISONING FOXES.—Mr. Hallet asked the best method of poisoning foxes, and members generally thought that birds treated with strychnine was the safest method, because dogs would not touch such baits.

BARMERA, April 24th.—Mr. L. A. Chapple, of the Berri Branch, attended the meeting, and delivered an address, "The Lay-out of the Drying Green."

BERRI, April 30th.—The report of the judges for the Peter Wood cup competition was received. For the second year in succession the cup has been awarded to Mr. W. M. Gilliard. This year Mr. Gilliard attained the very fine aggregate score of 95 points. Mr. F. McGlasson was placed second, with 87 points.

COOMANDOOK, April 4th.—Mr. Upton read a paper, "Results obtained with oats and superphosphate at the Roseworthy Agricultural College. An interesting discussion also took place on the subject, "Registration of Stallions."

LONE GUM and MONASH, May 2nd.—An interesting and instructive lecture, "Poultry on the Block," was given by Mr. Strahan to a good attendance of members and visitors.

LOXTON.—Nine members attended the April meeting of the above Branch, which took the form of a Question Box, when several interesting subjects were brought forward and discussed.

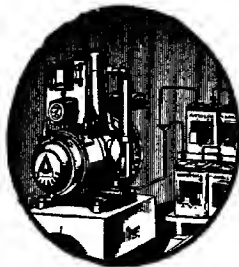
MOOROOK, May 2nd.—On the occasion of the annual meeting the Hon. Secretary (Mr. S. Sanders, jun.) presented a report of the work performed during the past year and the officers were elected for the ensuing term. It was decided that the monthly meetings should be held on Monday evening nearest to the night of full moon.

NETHERTON, April 27th.—A paper dealing with the subject, "Afforestation," was contributed by a member. An interesting discussion followed. It was generally agreed that red gum was the most useful timber for planting on the farm. Several members were of the opinion that stringy bark would do well in that district. It was decided that the Branch should secure 100 trees for distribution among the members to plant during 1923.

NUNKERI AND YURGO, April —.—The report of the local experimental plots conducted under the supervision of Mr. Sanders for the season 1922-23 was read and discussed.

WINKIE, May 7th.—An extract was read from the Departmental Bulletin, "Manures for the Home Garden," and a valuable discussion followed.

WYNARKA, April 28th.—The meeting discussed several subjects of local importance, particular interest being taken in the question "Is it advisable to use high grade supers?"



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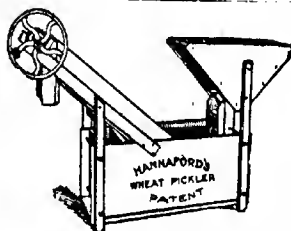
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## SOUTH AND HILLS DISTRICT.

## ALDINGA.

April 24th.

**MIXED FARMING.**—Mr. C. Lovelock read the following paper:—"During the past few years there has been a marked increase in the price of agricultural land, and if this continues, growers of wheat and hay will have to turn their attention to other forms of primary produce. There are several lines, including the raising of dairy cattle, lambs, pigs, and poultry, can be undertaken in this district to advantage. In doing this I would recommend going in for the best breeds of each line, as a pure-bred animal will not eat more than a scrubber; in fact, I do not think they eat as much, and when they are ready for market they return twice as much in value. Everybody does not favor the same breed of cow, but whatever breed is selected, the farmer should endeavor to obtain animals of the best strain. The Ayrshire breed of cattle is noted both for the quality and quantity of milk produced by the cows. The breed is noted for its foraging capabilities, and the cows will hold to their milk production so long as there is any green grass or fodder available. They are economical to keep, the heifers grow and mature quickly and calve early, and as mature cows they keep in milk for a long period." The speaker then gave a detailed description of Friesian cattle.—The farmer should select the breed that he thought would suit his particular locality and stick to one breed, after having satisfied himself that he had obtained animals of a good strain. "All dairymen should learn the points of a good dairy cow. Study the principles of heredity, and buy and keep none but those known to be good. Select a good sire with proved pedigree and good points, milk and fat production being the primary objects. As much information as possible should also be obtained regarding the dam and grand-dam. A good idea after purchasing a cow is to feed it properly and keep a record of the milk and fat produced. If it does not come up to expectation in two years, fatten it and get rid of it to the butcher, as it is only taking up the room of a better cow. In selecting a good cow, see that it has prominent eyes, good width across the forehead, open nostrils, and wide muzzle. The shoulders should be fine on top, and the ribs well sprung out, and a good width between the hip bones. The udder should go well along the belly and extend well up behind. It should be evenly quartered, show prominent milk veins, and have teats of a fair length placed at equal distances apart."

## ASHBOURNE.

April 30th.—Present: 12 members.

**BIRD PESTS.**—Mr. V. H. Payne contributed an interesting paper, "The Increase of Bird Pests." The paper was of general interest, and resulted in an interesting discussion. It was generally agreed that the best method of destroying the pest was poisoning, by feeding with good grain for a week or so, and then substituting poisoned corn. Some members advocated the use of bird lime on fences around stacks and where birds are particularly troublesome.

## BALHANNAH.

May 4th.—Present: 25 members and three visitors.

**PASTURE LANDS.**—The following paper was contributed by Mr. J. P. Johncock:—"Land that is cultivated from time to time and allowed to lie as pasture for a period should convey to farmers a lesson regarding the requirements of permanent pasture. It is always noticeable that where stock have the choice between land that has recently been tilled and land that has not been disturbed for years, that the stock prefer the former, although to appearances probably the latter has by far the greater body of feed. This is, then, proof positive that the growth on the land that has been disturbed has a food content that is missing from the growth on the land that has been allowed to lie idle. There

can be two reasons for this: Either the land that has been cultivated has been sweetened by the action of the plough or by the application of plant food. By correct treatment of the majority of pasture lands it should be possible to make a vast improvement which should prove a sound investment. It is possible by careless treatment to produce a large quantity of growth that is not only valueless as a fodder, but also a nuisance on the property. The best pasture, in my opinion, is Perennial rye grass and *Trifolium subterraneum*, a mixture that provides an excellent fodder, and with reasonable stocking will gradually increase the carrying capacity of a holding. But whilst these two varieties hold the palm in ordinary seasons, in a long dry spell, such as has been experienced during the last few months, it is well to have something that resists the dry times and is capable of providing green fodder. Probably the grass that will best fill this bill is *Paspalum*. It is a wonderful drought-resistant plant, and puts forth green foliage with the least possible amount of moisture. Another grass with this virtue is Lamb's Tongue or Rib grass. Two other grasses which appeal strongly for permanent pasture are Tall Fescue and Yorkshire Fog. The latter variety will keep green well into the summer. With the correct treatment of the soil and the establishment of the right classes of herbs and grasses, there are other points to be considered if maximum results are to be obtained, and priority of place should be given to judicial subdivision. It has been proved that three 100-acre paddocks will carry more stock than one 300-acre paddock, and this is even more emphasized in smaller proportions. Judgment is necessary in subdividing, and shelter from cold and boisterous weather, shade from very hot sun, the lay of the land as regards drainage, exposure to sunshine, &c., are points to be reckoned with when subdividing. If the pasture is uniform as regards plants and plant food, an observance of the stock, particularly through the winter months, will give the logical person a good hint of where to make the divisions. If the pasture lands are treated along these lines, and if it is found that the stock are not improving, there is only one thing more to do, and that is reduce the number of stock."

#### CHERRY GARDENS (Average annual rainfall, 33.03in.).

May 1st.—Present: nine members and visitors.

ANNUAL HOMESTEAD MEETING.—This gathering took place at the residence of Mr. C. Ricks, a life member of the Agricultural Bureau. The visitors, included among whom were delegates from Blackwood, Clarendon, and Ironbank Branches, inspected the vegetable and fruit gardens. Afternoon tea was provided by Mrs. C. Ricks. The formal business of the Branch was transacted during a meeting held in the evening.

#### CLARENDON (Average annual rainfall, 33.67in.).

March 26th.

PREPARING THE LAND FOR THE SEED.—In the course of a paper dealing with this subject, Mr. A. L. Spencer said land intended for fallow in their district should be broken up early in July. During the spring the land should be cultivated and brought down to a fine tilth. The working of the land whilst it was very wet should be avoided. If the land had received proper treatment, one light working of the cultivated land just before seeding should complete an ideal seed-bed. Land on which it was intended to sow peas should be worked with the cultivator at the earliest opportunity to a depth of 3in. or 4in. During the next working the land should be "cross cultivated." Should summer rains fall and cause an excessive growth of troublesome weeds, he considered it would be advisable to use the plough. If the land to be brought under peas had carried a crop of hay the previous season an endeavor should be made to get the crop in in June. Land capable of carrying peas should be ploughed to a depth of from 5in. to 7in., care being taken not to bring the clay subsoil to the surface.

DESTRUCTION OF RABBITS.—At a previous meeting, held on February 25th, Mr. J. Piggott contributed a short paper dealing with this subject. He favored the use of ferrets and the filling in of the holes with wood and stone. Those rabbits that remained could then be caught with dogs.

HARTLEY (Average annual rainfall, 15in. to 16in.).

March 28th.—Present: nine members.

**RABBIT DESTRUCTION.**—Mr. S. Tugwell, who contributed a short paper dealing with this subject, was of the opinion that the best method of dealing with rabbits on small holdings was to use traps and fill in the warrens after the rabbits had been cleared out of the burrows. Best results would be obtained from trapping, if the traps were set after a rain, because at that time the earth was moist, and there was very little danger of the soil getting under the plates and so preventing the trap working. He advised the use of a heavy trap with a long spring, and considered that during the trapping season the traps should be attended to three times during the day—in the early morning, just before darkness set in, and after dark with the aid of a lantern. The traps should be shifted from one place to another at frequent intervals. When the rabbits were trapped the meat from the carcasses could be boiled and used for feeding poultry and pigs, and the skins, if properly cared for, were valuable.

**PLANTING AND CARE OF LUCERNE.**—Mr. H. J. Harvey, who contributed a paper under this heading, said if the land chosen for the lucerne plot consisted of soil of a heavy nature, it should be fallowed to a depth of at least 6in. Should it be the intention of the farmer to irrigate, the block should be graded with a fall of 2in. to every chain. The fallow should be well worked, and before planting it should receive a dressing of about 2cwt. of super to the acre. He favored autumn planting and considered that work should be completed not later than May. The soil should be rolled with a heavy roller, and then worked with a set of three harrows. If a block of wood were dragged behind the harrows it would make a mark that would serve as a guide to sow with a cast of about 6yds. The seed should be broadcasted at the rate of about 14lbs. of seed to the acre. The best method of burying the seed was to use a blunt set of harrows and drag a light piece of timber behind. Stock should not be allowed to graze on the young lucerne. It was advisable to cut the plants with the clippers in August and again in November, and then run the harrows over the plot to check the ravages of the lucerne flea. The lucerne should not be allowed to flower during the first year of its growth. Mr. J. B. Natt gave a short address, "Liquorice Root Culture."

**MIXED FARMING.**—At a further meeting, held on April 25th, Mr. H. H. Cross contributed a paper on this subject, in the course of which he said their district could not be called a wheat-growing area, so that it was necessary to devote some little attention to a variety of side lines on the farm. On a farm containing an area of 400 acres, 100 acres should be sown for wheat, 25 acres for oats, and 25 acres for barley. That would leave 100 acres for fallow, 125 for grazing, and 25 acres for small paddocks close to the homestead. The latter area could be divided into 5-acre blocks, and used for growing green feed. The paddocks should be fenced to hold sheep, whilst it would be advisable to make one or two of them pig proof. Among the many side lines that could be pursued with profit he favored keeping sheep and poultry. He suggested keeping about 80 Merino ewes and mating them with a Shropshire ram, and would arrange to have the lambs dropped early in the season. The small paddocks previously referred to should be worked and sown, in order to be ready for grazing immediately the ewes commenced to lamb. For topping up he suggested turning the flock on the 50 acres of barley or oats, and three or four weeks of such grazing should put the sheep in prime condition for market. The ewes would be kept for shearing and subsequently for further breeding purposes. The farmer would also find that by devoting proper care and attention to a flock of about 200 head of poultry an additional source of revenue would be provided on the holding. He preferred the hen for hatching purposes, but good results could, of course, be obtained with the incubator. The chickens should be hatched in August and September, and old birds culled out every year. It was often stated that the fowls destroyed too much hay, and that they were a source of annoyance in the mangers and feed boxes; but he believed that if the stacks were built properly, and opened up evenly when chaffing hay, very little damage would be done, while the feed boxes could be covered. Mr. F. Pope then delivered a short address, "Does Fallow Pay on the Small Farm?"

## KANGARILLA.

April 27th.—Present: 22 members.

**TANNING.**—Mr. George Connor, who read a paper dealing with this subject, said at various times on the farm the farmer had the skins or hides of animals that had died or been killed for rations. Again, after shearing time, the sheep skins only realised a small price when sent to market, and hides often only brought a comparatively low figure when compared with the retail price that the farmer had to pay for leather. To convert the skins and hides into leather would provide the farmer with a profitable job that could be undertaken on wet days. From the hide he would be able to make or repair hame straps, belly and back bands, spiders, whip thongs, couplings, reins, breechings, leather washers, and material for mending the boots of the family. From the sheep skins, leather aprons and bags could be made. To make good leather, good skins and hides were necessary. The hides of well-grown beef cattle were the best, whilst those of old cattle, especially heavy milking cows, bulls, and stags, would only produce leather of an inferior quality. A simple tanning outfit could be made for a very little outlay. Two cement pits were all that were needed for working one lot of hides at a time. The hide should be taken from the animal without cutting or scoring it, yet at the same time one should be careful to remove all the flesh. It was a good plan to make a small hole on the edge of the belly portion of the hide. That would form a good grip for one hand. Then a hammer or the back of an axe should be used to knock the hide down over the ribs of the carcass. The hide should be kept clean, salted thoroughly with fine salt, and rolled up and kept in a cool place away from flies. If well cared for the hide should be properly cured in three weeks. In the case of sheep skins, no salt would be required, but the skins should be dried in a cool shed. The

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next work was to take the hide and wash off all blood, salt, and dirt with soft water. The hide should then be placed into one of the cement pits until soft, in which a solution of 1lb. of caustic soda to every 100galls. of water had been prepared. The hide should be stirred once or twice for a few days, and it would become soft and pliable. In the other pit lime water or milk of lime should be prepared by using 8 per cent. of lime on the weight of the wet hide. The hide should be placed into the pit, and stirred once a day for a week or 10 days. Next the hide should be removed from the pit, thrown over a smooth plank, and the hair scraped off with a piece of smooth hoopiron. With a sharp knife any pieces of fat or flesh should be removed from the flesh side of the hide. He had used a hatcher's knife, the edge of which had been slightly turned with the steel, with good results for that purpose. To remove surplus lime, the hide should again be washed and then placed in water. It was important that right through the process the hide should not be allowed to dry. Should strap, belting, or other soft leather be required, it was necessary to remove the lime and the glue or cementing substances from the hide. That was most easily done with an infusion of fowl manure. A good shovelful of manure should be dissolved to every 8galls. of water. After three days fermentation would have commenced, and the sediment could be removed by straining. Into that solution the hide should be placed and allowed to remain for five or six days, and stirred occasionally. A tan liquor should be prepared in one of the pits, and the hide placed in the pit. Every other day the liquor in the pit should be built up by the addition of a little ground wattle bark. It was most important to move the hides and skins about in the pits to ensure an even action of the liquor. In about four weeks the hide should be colored right through, provided that the strength of the liquor had been maintained. From that time onwards the strongest tan liquor could be used, and after three months in the pit, the hide could be taken out and placed over the beam on which it had been fleshed. The flesh side of the hide should be shaved with a knife with a turned edge. Then it could be laid out on a clean and shady floor, and when the surface moisture had dried out, the grain side should be oiled with neatsfoot oil or dressed with a coat of soft grease or lard. That work should be continued until the hide was half-dry, when it should be placed on a smooth table and ironed and stretched with the edges of a smooth flat iron. The ironing should be done to both sides of the hide in order to remove all wrinkles. The leather should not be oiled whilst in a dry condition, or the grease would spue out under pressure. If it was thought that the leather was not sufficiently soft, it could be damped slightly with warm water and then given another small dressing of oil. The leather should be dried in a cool place and hung up to prevent the development of mould. Care should be taken not to allow the leather to come into contact with iron, or it would at once become discolored. The drying process should take about one week. The flesh side should be dressed with beeswax and turpentine, mixed to a paste and applied whilst hot with a piece of rag. Mr. Connor also replied to a number of questions.

#### LENSWOOD AND FOREST RANGE (Average annual rainfall, 35in. to 36in.).

April 30th.

LAYING OUT THE ORCHARD.—Mr. G. Schultz, who read a paper dealing with this subject, said points that had to be considered in the laying out of the orchard in a district such as theirs, where practically all the land was good, were the position and grade of the land, convenience of water, and situation to main road. The house should stand on a piece of land sloping to the north-east in order to obtain the full benefit of the morning sun, and be in a block distinct from the orchard, with room for a flower garden and all outhouses. The sheds and stables should be about 100 yards from the house, and on lower ground or sloping away from the house. The stable should open to the north-east. For most trees in that district a position facing south-east was best, because it produced fruit of a better color, finer skin, and later ripening qualities. Of course, there were exceptions where the soil made more difference than the

position. In some cases it was a good plan to have some trees in another position, as it gave a longer season for picking; but as a rule the late position would pay best, because there was always a chance of having fruit when others had finished. Trees should be planted 20ft. to 24ft. apart, with not less than 15ft. outside the rows. The price of land in that district was a small consideration compared with the convenience of working. Particularly was that so if the trees had a heavy crop in a dry year, and when an extra working or two was needed. When the trees were hanging low and were large enough to reach across the rows they shut out the light, which meant diseased and colored fruit. In a dry season the trees had more chance of obtaining sufficient moisture, because there were less trees to share the moisture and more opportunities of keeping the land cultivated.

**POLLINATION PROBLEMS OF FRUIT TREES.**—In the course of a paper under this heading, Mr. R. Hall stated that whilst a satisfactory crop of fruit could not be gathered unless the trees were sprayed, that operation had, in his opinion, a harmful effect in that it destroyed many insects which assisted in fertilising the flowers, and in this manner hindered the setting of the fruit.

#### LONGWOOD (Average annual rainfall, 37in. to 38in.).

April 28th.—Present: eight members and visitors.

**HOMESTEAD MEETING.**—The monthly meeting of the Branch was held at Mr. R. Higgins's homestead. In reply to a question from Mr. Higgins as to why there should be rotten tubers amongst the potatoes that he was digging, Mr. Roebuck expressed the opinion that the soil might have set down tightly and the potatoes become affected by the sun. He thought that if plenty of well-rotted stable manure were cultivated into the soil, the trouble would be remedied. A question was also asked as to the best method to adopt to grow potatoes for seed only. It was stated that the best plan was to plant in the usual way, and set aside for seed every potato from each good plant. It was also advisable to go through this plot and remove all but two stalks. Reference to stock feeding was made by a member, who mentioned that refuse linseed was obtainable at the mills for 17s. per 100lbs. It was agreed that such linseed would be useful, but several members thought whole linseed at 29s. per cwt. was better value. Mr. Higgins tabled an excellent exhibit of fresh, dried, and preserved fruit, vegetables, jams, and jellies.

#### MAGGILLIVRAY (Average annual rainfall, 19in. to 20in.).

May 1st.—Present: seven members.

**SHEEP FLY PEST.**—Mr. H. Seagar, who contributed a paper dealing with this subject, first referred to the damage and loss caused by the blowfly, and mentioned the valuable work that had been done to find some means of dealing with the pest by Mr. W. Froggatt, Entomologist of the New South Wales Department of Agriculture. Following a description of the fly, its life history, and a reference to the introduction of the chalcid wasp, Mr. Seagar said it had been proved over and over again, not only in New South Wales, but also in South Australia, that the best method of dealing with the pest was to destroy the breeding grounds by burning carcasses, offal, &c., and where that was not practicable, to open the dead sheep and hang them on fences, where the maggots would drop out, and be destroyed by the sun and birds. *Methods of Combating the Fly.*—Crutching should be carried out before lambing (but not so late as to knock the ewes about), while sheep that were scouring should also be treated. The sheep should be shorn over the tail and down the legs. That was a very effective method indeed of protecting the sheep. *Dipping.*—Arsenic dips were a temporary deterrent to the fly, but did not last long, especially when sheep were dipped off shears. He had dipped his ewes late in March, and so far they had not been attacked by the fly. *Traps.*—There were many traps, good, bad, and indifferent. A trap was exhibited by the speaker, who stated that it was inexpensive and simple, and the children could make it in a very short time. It consisted of a petrol tin with a wire gauze cover. In the centre of the

cover was a gauze cone 4in. in diameter and 4in. deep, with an opening about the size of 3d. To make the tin last longer, it should be painted with white cold water paint. It was necessary to place in the trap about ½gall. of water and 1lb. of meat, or the fore part of a wallaby. Within a day or so that would ferment and attract the flies. The flies would alight on the lid and hunt around until they found the opening. They would then rise up and buzz about underneath the cover, causing a greater attraction to the flies outside. The trap should be visited about once a fortnight, and water and more meat added when required. Before removing the cover it was necessary to destroy the flies inside the gauze cover with hot water or singeing their wings with burning paper or a rag dipped in kerosine. The traps should be protected from being knocked over by tying it with wire to a stake. The trap lasted much longer if it was placed on two pieces of wood. The traps should be placed where the sheep congregated most—one at the sheep yards (which was always the worst place for sheep being struck), the wool shed, the killing pen, at watering places, and favorite camping grounds, and if a hospital paddock were used for sick and blown sheep, it was most advisable to have one there. In their district the sheep-owners would only require about five traps on each property of 500 to 400 acres. *Poisoning*.—If it were found impossible to burn a dead horse or cow, the carcass should be covered with a solution of 3lbs. of arsenate of soda to 30galls. water. That would kill every fly feeding on it and all the maggots, but it did not last long, because the arsenate soon dried up the carcass. *Treatment of Fly-blown Sheep*.—Sheep blown should be crutched, the maggots destroyed and removed, and the wound dressed. Petrol or kerosine would kill the maggots; the former had proved to be too severe on the sheep. There were many dressings on the market, and some were very effective, but the one he had successfully used was a solution composed of white arsenic 3ozs., water 10galls., washing soda 2ozs., and soap 3ozs.

#### MEADOWS (Average annual rainfall 25.52 in.).

March 6th.

**HOMESTEAD MEETING.**—The monthly meeting of the Branch was held at Mr. N. Brookman's homestead, when a large number of members and visitors took the opportunity of inspecting the "Burbrook" orchard. Members were very much impressed with the fine condition of the soil, and the healthy and clean appearance of trees, and the fine breakwind of *Pinis insignis*. The Horticultural Instructor (Mr. George Quinn) was present and gave a demonstration of budding.

**USEFUL HINTS.**—A further meeting was held on March 27th, when Mr. W. J. Griggs read a paper, "Useful Hints." The speaker first made reference to the beneficial and lasting effects a coat of tar had, when applied to iron and wood, especially pigsties, sheds, tanks, and troughs. A coat of tar applied to the mouldboards, plough, the tips of the coulter, and the hoe points of the drill when the implements had finished work for the season, would prevent any damage from rust. Fleas were a great nuisance about the pigsties, but if the sties and sleeping apartments were sprayed with phenyle and sprinkled with lime, they would be kept quite free from that pest. Mr. Griggs next referred to the many advantages that were to be obtained by keeping a diary. If a faithful record of each day's work were entered in the book, it would prove very useful if one wished to ascertain at any time the treatment that any particular paddock of the farm had received. The following method of making a simple and effective fox trap was suggested:—Take a kerosine tin, cut a square in the top and turn the four sharp points into the tin, just enough to enable the fox to insert its head into the hole. Place a parrot or some other form of bait in the tin, and place the tin in a suitable position. The fox got its head into the tin and the sharp points would stick into its head. He next made reference to the use of pigs for clearing the orchard of waste fruit. Trouble was sometimes experienced in the hay season through the binder twine continually breaking. If the twine was at fault, it could usually be remedied by damping the ball of twine and using it without delay. Hints on the best method of opening up the paddock with the binder, and avoiding stumps and stones were also given by the speaker. At the end of

the hay harvest the binder should be thoroughly oiled, and placed under cover for the next year's work. To make a breastplate for a horse with sore shoulders, he advised:—Take a branbag, fold it lengthways about 3in. wide, and run on two backband hooks. Sew the two ends of the branbag together and place a strap over the neck of the horse and on to the two hooks on either side. The chains can be hooked on to the hooks, and will relieve the sores of all strain. To stop a horse from hanging back, take a plough-line and place the middle of it around the horse's breech. Bring the rope to the middle of the back, tie a knot in the rope, and pass the rope on both sides of the neck. Tie another knot under the neck and run the ends through the bridle bit on to a post. This is also an effective method of dealing with a horse that will not lead. Finally, have a place for everything and keep everything in its place."

#### MORPHETT VALE (Average annual rainfall, 23.32in.).

May 3rd.—Present: 11 members.

**BLACKSMITHING.**—In the course of a paper under the heading, "A Forge on the Farm," Mr. L. F. Christie said a blacksmith's forge on a farm, if not a necessity, was a very great boon to the farmer, because it enabled him to perform a large variety of jobs. The amateur blacksmith nearly always found a difficulty in trying to make a point on a piece of iron, but if care were taken to bring the iron to a proper welding heat, and the metal then properly worked with the hammer, the trouble caused by the iron splitting would not be experienced. S hooks, eyebolts, links, gate hinges, hooks, staples, and many other useful articles used in the daily work of the farm could be made by the farmer after a very little practice. When two pieces of iron were to be welded, it was necessary to "upset" both ends before scarfing. If that were not done, there would be a weak place in the weld, because iron had a tendency to waste whilst being heated in the fire. When it was desired to maintain the exact length of a broken piece of iron, it would be necessary to make two welds. A little clean sand thrown on the heated iron would prevent it from burning or wasting. When cast steel was being worked, it was very important to avoid over-heating. The steel should be heated to a blood-red color. Good work could not be done at the forge unless the smith was careful to keep the fire clean and free from slag. Many farmers made a practice of shoeing their horses, and if a little time were devoted to a study of the hoof of the horse, he saw no reason why the work should not be performed in a creditable manner. In the first place, it was necessary to see that the shoe was made level, with wide heels. The frog and sole should not be pared, because they acted as protectors to the hoof against stones. The nails in the shoe should be kept well forward, because the quarters expanded and contracted whilst the horse was in motion. Care should be taken not to drive the nails in too deeply, for if they did not actually prick the foot, the pressure on the tender parts of the hoof would cause a good deal of irritation. After using the edge of the rasp under the edge of each nail, strong clinches should be turned down. It was a mistake to use the rasp above the clinches. The shoe was more easily fitted when hot, but if the hoof was inclined to be thin, care should be taken not to burn the sole.

#### MOUNT BARKER (Average annual rainfall, 30.93in.).

April 25th.—Present: 32 members and two visitors.

**THE FIRST THREE YEARS IN THE LIFE OF A HORSE.**—Mr. Geo. Cleggett read the following paper:—"Although mechanical power is taking the place of horse-power to a great extent on the roads and big farms in the wheat-growing areas, I think the horse will hold its own on the small holdings, such as are in our district. The competition of the tractor, however, makes it necessary for the horseman to breed the most suitable type of animal for the locality, and to back up the breeding with good feeding and training. To my mind, the most suitable type of horse for our small farms is the active medium draught—a horse that can take its place in the plough or trot eight miles per hour if required. The period of training



given to the horse is comparatively short, for by the time it is three years old its education should be complete, and a little time and patience given when handling a colt will be well repaid—a useful, reliable servant for many years or one that will always command a fair price if placed in the saleyard. It is advisable to keep an eye on the foal for the first two or three days after birth, to see that it receives natural nourishment. Some mares are very touchy with the first foal, and I have found it necessary at times to sideline the mare to prevent her kicking the foal, until the udder is softened by suckling. It is essential that the foal should get the first of its mother's milk soon after birth; this is nature's provision for the young animal. If from any cause the dam's milk is not sufficient, it may be supplemented with cow's milk, but this should be diluted with about one-third of warm water and sweetened with sugar. The foal will drink this readily when hungry, but it must be given in small quantities and at short intervals, or the foal will develop into a 'poddy.' This also applies to hand-rearing should the mare die. Should constipation occur—and this is about the only thing that will trouble the foal—a dose or two of refined castor oil and an injection of two or three pints of warm soapy water will generally effect a cure. As a rule, on the small farm the mare will be needed for work before the foal is fit to wean, but the mare can take her place in the team if the foal is secured in a good yard and allowed to have access to the mare every two or three hours. Do not allow the mare to become overheated. If it is possible, it is a good plan to have two foals about the same age; they will be company for each other when the mares are at work and also at weaning time. Teach the foal to be friendly but do not tense it. Give it a brush down occasionally, put a headstall on, and tie it up, making sure that the tackling is strong enough to hold the foal. When it finds that it cannot get away, it will soon give up trying. Do not pick up the feet of the foal unless you are sure that you can hold them, for if it finds that it can pull away, it will only make trouble for the shoeing smith later on. As the foal grows older allow it to feed from the manger with the mare. Always see that the food is sweet and clean. Wean the foal when it is about six months old. Milk the mare a few times, if it is necessary, to ease the udder, but do not let the foal suck after it has once been taken away. The milk will not do it any good, and this practice will only make it fret and take longer to wean. A good plan is to put it in a secure paddock out of sight of the mare, with another quiet horse, where it can be fed and get plenty of water. All the foal will need for the next two years is shade and shelter and plenty of feed and water to keep it in good condition. At two and a half years old the colt may be handled for work. Autumn is the best time, for then the young horse will be in fairly hard condition after grazing on the summer dry feed, and will not be likely to scald and chafe. When a start is made with the handling, give the colt a short suitable name. Use it each command, and the colt will soon answer to its name when in the team. If the horse is not quiet enough to catch in the paddock, allow it to follow another horse into a good yard. A circular post and rail yard about 6 ft. high is the best for colt-breaking. Take out the quiet horse, secure the panels, and get in the yard with a light stick long enough to reach the colt from the centre of the yard. Allow it to trot around for a while, touching it gently on the back with the stick. Do not frighten it or try to make it kick. If after a quarter of an hour it will not allow you to approach its head, place a strong rope with a running loop on the head of a stick and drop the loop over the head of the colt. Then take the end of the rope around a strong post and allow the colt to have a good pull. Do not tie the rope, but ease off the pressure if the animal chokes down. When it quiets down a little, put a strong headstall on the colt, with the bit unfastened on the near side, and then secure the headstall. Take the bit in the left hand, insert the thumb of the right hand into the near side of the mouth of the horse, and when it opens its mouth, slip in the bit on top of the tongue and make it secure. Never try to force the bit in the mouth roughly, or by rattling it against the teeth, or by knocking the colt about the head, or it will always be touchy. After the bit is secured, half the battle is over. Put a strong plough-rein on the near-side bit ring; never put a loop in the end of the rein, or twist it around the hand, and always tie a bowline knot, which will untie easily. Run the colt around the yard for a time, then put the rein on the off-side and reverse the running. When the animal is fairly well under control, teach it to lead and back, then put

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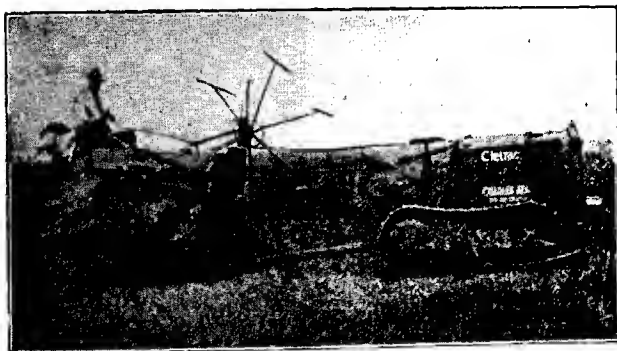
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a rein on each side, with an assistant on the off-rein, and take the colt out into a ploughed paddock where there is plenty of room. Drive the horse around, making it stop and start, when and where required, until it will stop or start at word of command. Then a set of spring-dray harness can be put on the colt. Tie the breeching-straps to the hame hooks, procure a light log, a strong drag chain, a wide swing, and a good pair of plough chains. Secure the hooks with hooks turned outwards, and then finish yoking. Do not put the reins through any of the harness rings, but make each man keep out wide, and should the colt get out of control, tell the off-side man to let his rein go; bring the colt around in a circle, and it will soon tire. Never let it get away. Putting a colt on a log at first is better than yoking it with another horse. It teaches the colt to start its own load, and makes it more tractable; it takes a little longer, but it is time well spent. After an hour on the log, the colt can be put on the near-side of the pole of the trolley with a quiet, reliable horse, that is a good mover. Use the ordinary double reins through the hame rings, still keeping the plough rein on the near-side, with a strong neck rope from the neck of the colt to the end of the pole, in case of accidents. Next the colt can be taken out on to the road, and if it is going to be on the metal road frequently, take the animal to the blacksmith and have a set of light shoes put on, when it can be taken home, a saddle put on its back, and ridden around the yard. Give the horse a little work every day; put it in the trolley when a trip has to be made to the station or the market. Put the colt in the dray to cart out the stable manure, never giving it a chance to get away, and then when the rain comes it can be worked for half a day in the plough, harrows, or drill. Work the horse on the near-side, off-side, in the furrow, and on the land, in the orchard, or in the field, and it will take it all as a matter of course; but if you break it in to one job only, the colt will never make an all-round horse. See that the harness is strong, soft, and well fitting, and keep a lookout for scalds and chafing. Do not use the whip often, but when necessary, use it effectively, and teach the animal to know that if it does not obey promptly its punishment will be sharp and certain. Give plenty of good food, to keep the colt in good heart. Treat it well, and you will have a servant that will toil willingly for its food for years. When the horse is too old to be of any more use, do not turn it out on the road to starve, but give it a friendly bullet, and bury it in a quiet corner of the farm that it has helped to work."

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MOUNT PLEASANT (Average annual rainfall, 26.87in.).

May 11th.—Present: six members.

CONCRETE FLOORS FOR FARM BUILDINGS.—The following paper was contributed by Mr. P. B. Hauesler:—"I believe cement concrete to be the best material for the construction of farm buildings, such as horse stables and pigsties. Concrete floors are durable and easily kept clean. They are also sanitary, reasonable in cost, and rat and vermin proof. Naturally, an abundance of bedding must always be used; but if stock are housed in the best and cleanest manner, the same can also be said of wooden and other floors. It is agreed that farm manure is the best fertiliser one can use for gardening, &c., and agricultural experts state that over one-half of its value lies in the liquid excrement. A concrete floor, being more or less impervious to water, does not allow this liquid to soak into it, with the result that manure of a better quality is secured. A further very beneficial point about concrete floors is that if they are regularly kept clean, they discouraged the flies, that in the warm months breed in large numbers in all foul and damp places, and especially in stables and sties having wooden floors. Board floors should not be used for any kind of stock, because when the timber becomes old and decayed, it becomes very unhealthy. The first step in making a concrete floor is to remove all manure and other foreign matter, and then to grade the surface of the ground. For this purpose it is best to use a spirit level and a fairly long mason's straightedge. Such earth fillings as may be necessary must be damped and tamped very tightly, and allowed to lie in that state as long as possible before the concrete is put on. The latter should be kept from direct contact with the earth by placing a layer several inches thick of gravel

or crushed rock over the surface of the levelled-off ground. The floor should be sloped about  $\frac{1}{4}$  in. per foot away from the mangers or feeding troughs, and should be made about  $\frac{1}{4}$  in. thick. The usual proportions of concrete for such floors are 1 part of cement to 2 $\frac{1}{2}$  parts of sand and 5 parts of crushed stone, or 1 part of cement to 5 parts of good clean gravel. The mixing should be done on a light wooden platform (never on the ground), and continued until the colour of the mass is a uniform grey, enough water being added to make it "quaky." Each batch must be placed as rapidly and as evenly as possible on the floor. If the gravel is of good quality, and has about the right proportion of clean, sharp sand in it; no finishing mortar should be required. Such a mortar is generally mixed in the proportion of 1 part of cement to 2 parts of sand, and is applied  $\frac{1}{4}$  in. thick to the  $\frac{3}{4}$  in. concrete base before the latter has finished setting. To provide good footing for the animals a finish on the floor should be made with a wooden float, or if a steel float finish is made, it should be roughened with a stable broom. The finished floor should be kept thoroughly wet and protected from drying winds and the sun for the first week or ten days. Wet sawdust can be used with advantage for this purpose as soon as the surface is sufficiently hard. As to the labor, ordinary farm help can do the work very well."

A further well-attended meeting was held on May 16th, when the Wool Instructor of the School of Mines (Mr. A. H. Codrington) visited the Branch and delivered an address, "Farm Wooldressing."

#### PORT ELLIOT.

April 21st.—Present: seven members.

THE USEFULNESS OF THE AGRICULTURAL BUREAU.—The Hon. Secretary (Mr. H. B. Welch) read the following paper:—"Many farmers do not realise the benefits that have resulted through the establishment of the Agricultural Bureau. Take, for instance, the advance made in cereal-growing, for the increased yields are largely due to the use of fertilisers so strongly recommended by the Department of Agriculture. Not only has the grain average been raised considerably, but fodder has become more plentiful, making mixed farming much more remunerative through the use of fertilisers and the adoption of better methods of cultivation. The treatment of stock is also a great help to those engaged in dairying and stock-raising. Many remedies have been circulated that proved of great value to owners, and the constant advice to improve the quality is having good effects. Orchards and vineyards are also increasing and improving in their products, and the expert officers of the Department are ever ready to help in cases of disease and to advise how to secure increased yields. The *Journal of Agriculture* contains the experience of many who have devoted a great portion of their lives to cultivation of primary products, and is of much value to those just making a start on the land. I am very sorry that the young men of to-day do not join and attend the Bureau meetings; we do not begrudge manly sports, but every young man should take an interest in some calling, whether on the farm, orchard, or dairy, and endeavor to excel in his work as much, or more, than in sport."

#### RAPID BAY.

April 7th.—Present: 12 members.

The Hon. Secretary (Mr. G. W. Cant) read a paper, "Conservation of Green Fodder," and an excellent discussion followed.

BEE CULTURE.—At a further meeting, held on May 5th, a paper under the heading, "Bee Keeping for Pleasure and Profit," was contributed by Mr. L. C. Cant. In the course of the paper, Mr. Cant said many people imagined that bee keeping was not a very fascinating pastime, principally because of the stings of the bees; but that unpleasant feature and many others had been eliminated

to a great extent by modern methods of handling and hiving. With a good smoker and proper protection, the swarm could be handled without any fear. The object of smoking was not to suffocate or stupify the bees, but to make them gorge themselves with honey. A bee when full of honey would only on very rare occasions sting a keeper. When there was plenty of honey available, very little smoke was required, and the keeper could sometimes work safely without a veil. In order to minimise the danger of being stung, the person handling the bees should not stand in front of the hive when the bees were working, because that hindered their flight. As many bees as possible should be shaken off the combs; too much brushing tended to make the bees savage. Unnecessary jarring of the hives also excited the bees. Apart from the hives, hees, smoker, and veil, a good hook dealing with bee culture was an absolute essential to anyone making a start with bee keeping. It was also a good plan for the beginner to watch a prosperous apiarist tending the bees, because many useful hints could be gained. Mr. Cant said his paper was written with a view to helping the man who wished to keep a few hives for honey for household requirements, rather than for the man who intended to adopt bee culture as a means of gaining a livelihood. It was not a very difficult matter for a farmer to secure a hive of bees in that district during the swarming season. Referring to the selection of a hive, the speaker said that many people considered a petrol case quite good enough for the purpose, but when the season was completed they blamed the bees and the foliage for the scanty flow of honey. In the first place the timber in the sides of the petrol cases and other similar boxes was only about  $\frac{1}{4}$  in. thick, and that did not provide sufficient protection for the bees against heat and cold. Neither did such cases provide sufficient room to house a large swarm of bees. For the amateur, he favored a one and a half story hive, the bottom story being used for the brood and the half story for the honey. The swarm should be placed into a single story first, and when the bees commenced to build comb on the top of the frames, the half-story should be attached. During the period of the honey flow the bees should not be allowed to become overcrowded. Mr. Cant recommended the use of half-supers, especially during the spring. The half-super did not take up so much space, and it also encouraged the bees to build more quickly. In addition to that, the honey could be cut out with greater ease, and kept for comb honey or strained. After the one and a half story hive had been secured, 16 frames, eight full depth and eight half depth, should be obtained and wired with No. 30 wire. The next job was to see that the foundation was fastened into the frame with melted wax. Full sheets should always be used in the bottom box, because that did away with many of the drones caused by the bees building drone comb where there was no foundation. Starters should be used on the half story. The hive should be sheltered from the wind, but allowed to receive as much sun as possible, especially in the early morning. When the swarm was being hived, a bag should be placed in front of the hive and the bees shaken on to it, and with a little practice the queen could be picked out and placed in the hive. Whilst the Italian bees were to be recommended for the man who intended to derive a living from honey, the ordinary black bees would give quite sufficient for household supplies if the swarms were kept in a strong and healthy condition. The outfit for one swarm would cost about £2. Mr. Cant also gave an illustrated address, "Queen Raising and Bee Diseases," and replied to a large number of questions.

#### ROCKWOOD.

April 28th.—Present: 13 members.

SEEDING OPERATIONS.—Mr. F. Ness contributed the following paper:—"The first work in connection with seeding operations is fallowing. On heavy land this work should be performed in August, whilst soils of a lighter character should be treated not later than September. The fallowed land should be worked with a cultivator later on in the spring, so that the surface will be broken down finely before the commencement of the hot weather. Should summer rains fall, the land should be harrowed with the exception of any light sandy ground, which

should be left as rough as possible to keep it from drifting. Summer fallowing is also recommended for this district. The work can be done after a summer rain, and light land can be worked with a disc plough whilst it is quite dry. This working of the land kills the stinkwort and breaks the top soil, so that a much finer seed bed is obtained. Stable manure is also a valuable asset to crop production. The manure should be cleaned out of the stable, heaped, and allowed to rot until autumn, when it should be spread on the land on which it is intended to grow a hay crop. The best time for seeding is from the 1st of May until the middle of June, but if rain is late, it is a good plan to give the weeds a week to start before commencing to sow. The fallow should be sown first. It should be worked at a shallow depth—just deep enough to kill the weeds, and a firm bed left for the roots of the plant. This working should be followed closely by the drill, and the land then harrowed with a light set of harrows to bury any seed left uncovered. Stubble or grass land should be ploughed deep enough to turn all grass and weeds under the soil, and then it should be drilled and harrowed. If, after these cultivations, it is still lying open and rough, a good plan is to cross-harrow, in order to break down the furrows. All wheat sown for grain should be pickled to guard against smut and bunt in the crop. I have always used blue-stone, treating the grain a day or two before sowing. My last season's crop was badly affected, so that I am not thoroughly satisfied with this method of treating the seed." In the discussion that followed, Mr. A. E. Henley did not favor the early fallowing of sandy land, because the grass that would be ploughed under could be grazed off with sheep. Just as good a crop could be grown by ploughing the land six weeks before seeding and then working the fallow back at seeding time. Mr. J. Steed advocated running sheep on sandy country, because they improved the land by tramping it down and made a much firmer seed-bed.

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ASHBOURNE, March 26th.—The meeting took the form of a debate on the subject, "Merino v. Crossbred Sheep." Messrs. V. H. Payne, W. Newton, and G. Whittam supported the Merino, while Messrs. A. Cox, W. H. Cuning, and S. Cuning spoke in favor of the crossbred. The judges decided that the advocates of the crossbred had put forward the better arguments.

BLACKHEATH, April 27th.—The meeting took the form of a Question Box. Several interesting subjects were brought forward for discussion. It was decided that the July meeting should take the form of a social evening, when members would take the opportunity of extending a welcome to farm apprentices.

BALHANNAH, March 2nd.—Before an audience of 37 members and five visitors, Mr. H. Boehme contributed a lengthy paper under the title "Milk and its Products." Mr. Boehme explained the nature of milk and its composition, and then dealt with the manufacture of milk products, describing the methods used in making each. He laid particular stress on the necessity for protecting milk from impurities and contaminating influences, and pointed out methods by which skim milk and whey could be utilised for profit.

CHERRY GARDENS, May 29th.—Mr. C. Ricks delivered an interesting address, "Rural Life in England Fifty Years Ago."

CYGNET RIVER, April 30th.—Mr. H. L. Moar delivered an address, "Milk Fever and Mammitis in Cows."

MEADOWS, May 2nd.—The Assistant Dairy Expert (Mr. H. J. Apps) attended the meeting and delivered an address, "The Breeding and Feeding of Dairy Cattle," to a gathering of 11 members and several visitors.

SIOAL BAY, April 24th.—The Chairman (Mr. H. Noske) read a paper, "Breeding and Fattening Lambs," and in the discussion that followed the majority of members expressed a preference for the use of the Dorset Horn ram, but it was considered that the Shropshire cross gave a better percentage of lambs.

## SOUTH-EAST DISTRICT.

GLENCOE (Average annual rainfall, 33.84in.).

April 30th.—Present: 11 members.

CONSTRUCTING A SILO.—The following paper was read by Mr. A. Tregenza:—  
 “The silo is constructed with four pieces of 6in. x 4in. hardwood and as many pieces of 6in. x 2in. oregon as will complete the four sections of the circle, using the latter as staves would be used in making a cask. Four posts are put in the ground at equal distances around a circle of the size contemplated, and the 6in. x 2in. timbers in sufficient number to complete the four segments of the circle. The silo should be greater in height than in width, and the higher it is within reason, the less waste there will be in the product when this is ready for use. A 13ft. diameter silo will take four 17ft. 6in. x 4in. hardwood posts and 74 6in. x 2in. oregon staves 15ft. long, but as 74 is not equally divisible by four, it will be better to make the silo slightly larger or smaller in diameter. The staves are held in position by four or five hoops of  $\frac{1}{2}$ in. mild steel in quarter sections. This steel is sold in 20ft. lengths, and as it is necessary to have them overlap slightly more than the division of the circle, the silo, if convenient, might be regulated to the length of the rods, or it will be necessary to weld the odd pieces. It would be a good plan to make a model of the required size to scale of, say, 1in. to the foot. Each post should be bored with the correct number of pairs of holes to take the required number of hoops. The hole by which the rod enters the post should be bored so that the inner edge will be on the 2in. line on the post, or just where it will meet the 6in. x 2in., which will leave the posts and staves even on the inside. To protect the timber, a double plate or washer of  $\frac{3}{16}$ in. iron should be put at each side of each post. The double-holed plate is considered much better than two single washers. The hole in the post through which the screwed end of the rod will come out must be far enough from the stave to allow for screwing up the nuts, so that in each pair of holes one must be bored from from either side. Eight inches to 10in. should be screwed on both ends of the rods to allow for taking up the slack. The rods may be bent over the segment of a circle corresponding with the circle of the silo, or a groove may be gouged out of the top of a stump or block of wood, and the rod bent into it with a maul. If a circle corresponding with the size of the silo is drawn upon the ground near by, the quarter-rod may be gauged accordingly. The staves should be coated with boiling tar on the outside and edges before erection, because this work can be more easily and effectively done at this stage than after. Do not tar the inside, because the wood should be left absorbent, so that it will swell with the liquor from the silage. The more nearly airtight the sides of the silo are, the better will be the ensilage. When the silo is empty the staves will contract and fall inwards unless secured at the top. This can be prevented by tacking two pieces of 6in. x  $\frac{1}{2}$ in. board imposed over one another, the second covering the lap half way, using one or two nails to each stave. If more than one nail is used, let them be directly over one another on each stave. This hoop should also be tarred on both sides before being placed in position. It is suggested that two doors in a 15ft. silo will be sufficient for emptying. These can be placed at 5ft. and 10ft. from the ground level. The door is made by cutting out 3ft. of three of the staves on the bevel, so that the inside pressure will jamb it into position. A couple of buttons on the outside may be necessary to hold it in position whilst material is being filled in, and the staves above and below the doors will require securing in the same manner as suggested for the top of the silo. It is preferable that the hoops should not be far above or below vents or doors. It is not necessary to floor the silo, but to do so is to prevent waste; nor is a roof necessary, unless the silage is to be kept through the winter. If a number of persons in a locality contemplate erecting silos, they should form themselves into a co-operative company and bulk their orders into one for all the material. Working bees could be established for the erection of the silos in groups according to the sizes or number of silos. If a co-operative company were formed they might go further than erecting the silos, and purchase a chaffcutter and engine and continue the business in perpetuity. For



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each silo it would be necessary to have a shoot to facilitate emptying, which should be far enough from the ground level to allow a bag to be attached or to put a vehicle under to enable the silage to be conveyed to the place of feeding."

#### KYBYBOLITE (Average annual rainfall, 22in.).

March 29th.—Present: 13 members, two visitors.

THE EFFECTS AND VALUE OF LIMING THE SOIL AT KYBYBOLITE.—Mr. L. J. Cook (Manager Kybybolite Experimental Farm) contributed a paper on this subject. He said the effect of liming the soil was very noticeable. The growth secured, after the lime had time to act physically on the soil, had been most improved, both in quantity and quality. Cereals in particular had a much more healthy appearance, did not suffer so quickly from extreme moisture and cold, recovered from the setbacks of winter more quickly, and continued growth earlier in the spring. Sorrel was much checked, and sweeter growths came quickly and thickly on the stubble. In the pea tests during the season just past the growth of wireweed on the stubbles was most noticeable. On the limed plot it made a dense mass of growth; in fact, more than double that produced on neighbouring plots dressed with phosphatic manures but not limed. Sorrel was practically a useless weed, and was becoming very prevalent on all fields not dressed with lime. Although stock would eat it, its nourishing powers were far from good, and stock invariably preferred to browse on those fields that had a dressing of lime. Liming improved the texture of the soil; he noticed that point because it was possible to work soils that had been limed at times when other fields were not in fit condition for working. It also utilised the organic matter in the soil, acted on fresh animal products, and caused a loss of ammonia—a valuable plant food. That theory was undoubtedly true, but at the same time lime was necessary in a soil to be used as a base, and assist the bacteria of the soil to fix the nitrogenous foods in a soluble form suitable for the use of plants. As the process of liming caused greater and improved growth of plant life above the ground surface, it necessarily caused greater root growth, consequently greater organic residues were left from a limed crop. "Hence," the paper continued, "unless a soil already contained large quantities of calcareous matter—over 1 per cent. to 2 per cent. of the soil—we need not fear detrimental results from this cause by applying lime. To add 1 per cent. of lime to a soil it would be necessary to apply 14 or 15 tons per acre. When we have applied somewhere near that quantity to our soils, then we shall need to consider closely the organic content. Now, consider the value of lime in extra returns actually received. Unfortunately, at present, I am unable to give definite figures relative to the stock-carrying capacity of limed areas. This has been considerably higher on limed soil than on other fields, and a large amount of gain from liming is to be secured through the stock pastured on the land. However, I purpose giving the returns of various crops during the last two seasons, 1921 and 1922, comparing those produced from limed areas with those from unlimed areas. All fields were dressed with phosphatic fertilisers. 1. Hay.—In 1921 hay was cut from 16.87 acres of limed land, yielding an average of 1 ton 13cwt. 109lbs. per acre; and from 101.7 acres of unlimed land, yielding an average of 1 ton 12cwt. 14lbs. per acre. In 1922, 25.89 acres of limed areas produced 2 tons 2cwt. 4lbs. per acre, and 59.99 acres of unlimed areas produced 1 ton 9cwt. 68lbs. per acre. the average for the two seasons equals 1 ton 18cwt. 19lbs. per acre from limed land, as against 1 ton 10cwt. 97lbs. from unlimed land, a difference of 7cwt. 24lbs. in favor of the limed land. Valued at 3s. per cwt., this is equivalent to 22s. per acre. 2. Oats.—In 1921 practically all oat crops growing on limed land were destroyed by caterpillars, only 5.23 acres being harvested, yielding 1bush. 20lbs. per acre; whilst 47.54 acres of unlimed land produced 14bush. 30lbs. per acre. In 1922, 32.75 acres of limed land yielded 39bush. 32lbs. per acre, and 53.65 acres of unlimed land yielded 5bush. 30lbs. per acre. This latter yield was reduced considerably by heavy winds immediately before harvesting. However, the average yields for the two seasons have been from limed land 20bush. 26lbs., and from unlimed land 10bush. 10lbs., showing an increase

due to lime of 10hush. 16lbs. Valued at 2s. 6d. per bushel, this increase is equivalent to 26s. per acre. 3. Wheat.—In 1921, 31.24 acres of limed land produced 17bush. 4lbs. per acre, and 94 acres of unlimed land produced 10hush. 48lbs. In 1922, 26.92 acres of limed land yielded 20bush. 52lbs., and 34.81 acres of unlimed land yielded 8bush. 56lbs. per acre. The average yield for the two seasons has been 18bush. 58lbs., as against 9bush. 52lbs.; an increase in favor of lime of 9hush. 6lbs. per acre. Valued at 5s. per bushel, this is equivalent to 45s. 6d. 4. Peas.—In 1921, 16.22 acres of limed land yielded 8bush. 53lbs. per acre, and 8 acres of unlimed land yielded 5bush. 43lbs. per acre. In 1922, 10.77 acres of limed land yielded 18bush. 42lbs., and 8 acres of unlimed land yielded 7bush. 34lbs. The average yield for the two seasons has been 13bush. 47lbs., as against 6bush. 38lbs., an increase in favor of lime of 7bush. 9lbs. Valued at 7s. per bushel, this is equivalent to 50s. per acre. Allowing, therefore, that after the application of 1 ton lime we grow one each of the above crops, we should receive the sum of £7 3s. 6d. in return for the lime which at present would not cost more than £4 to purchase and apply. Besides the above, there is all the extra feed produced by the lime, an application of 1 ton of which would show a benefit for at least eight seasons after application. The above figures are general, and include all areas sown to the various cereals and peas during those years. I will give also the returns of hay received from Plots 2 and 2A of our rock phosphate test, as compared with those from Plots 3 and 3A. This test is being carried out on two-acre plots of some of our poorest soil, and has now been in progress for four seasons, and the results are becoming interesting. Wheaten hay is grown alternately in rotation with peas, and Plot 2 has received 5cwts. lime and 1cwt. super annually, whilst Plot 3 has received only 1cwt. super annually. The returns per acre have been as follows:—Plot 2.—1919, 1 ton. 6cwts. 105lbs.; 1920, 17cwts. 35lbs.; 1921, 18cwts. 28lbs.; 1922, 2 tons 4cwts.; means, 1919-22, 1 ton 6cwts. 70lbs. Plot 3.—1919, 1 ton 7cwts. 28lbs.; 1920, 13cwts.; 1921, 17cwts. 84lbs.; 1922, 1 ton 12cwts. 70lbs.; means, 1919-22, 1 ton 2cwts. 73lbs. This shows an average increase of 4cwts. hay per acre per annum. It is most noticeable that the increase in return was much greater in 1922, showing that small applications of lime do not have an immediate effect. It is to be anticipated that in future seasons the difference will continue much greater. The returns for peas on the same plots have only shown an advantage of 1bush. per acre by the lime. This is undoubtedly due to the small applications. Peas require at least 1 ton per acre on local soils before they can be grown successfully. On the apple orchard we have tested lime and other fertilisers. In rows 32-35 lime and super is tested against super only. Row 32 of Jonathans is dressed annually with 3lbs. super per tree, and during the past two seasons has each year produced 1bush. 14.7lbs. fruit per tree. Row 34, also of Jonathans, is dressed annually with 3lbs. super and 10lbs. lime per tree, and for the same two seasons has produced 1bush. 22.8lbs. fruit per tree. This is an increase of 8lbs. fruit per tree, due exclusively to the lime application. Valuing apples at 5s. per bushel net, and lime at £4 per ton, we received a profit of 8d. per tree each year by applying the lime. Rows 33 and 35 are treated similarly with manures, but are planted with Cleopatras. Row 33 has produced an average of 2bush. 11.1lbs. per tree. Row 35 has produced an average of 3bush. per tree. This is an increase of 28.9lbs. fruit, due to 10lbs. lime, which at above prices show a profit of 3s. 4d. per tree. These rows consist of 21 and 23 trees respectively. If we consider an orchard similar to ours with 125 trees per acre, and manured as per rows 34 and 35, and planted half with Jonathan and half with Cleopatra varieties, we should receive a profit from the lime of 2s. per tree, or £12 10s. per acre. If the orchard consisted of Cleopatras, we could expect £21 per acre profit." During the discussion which followed, Mr. Cook stated that the results were not very noticeable during the first year, but the best results were obtained in the second and third years and should continue for about eight years. Mr. L. S. Davie stated that he thought lime was necessary, and if possible should be used. Mr. Cook stated that liming was an expensive but necessary practice. He was not in favor of applying in small quantities, because larger dressings gave better returns.

## MOORAK.

March 8th.—Present: six members.

**FARM HINTS.**—Mr. J. Nicholls, who read a paper under this heading, said in the sowing of oats he had found that better returns were obtained from Scotch Grey oats than from the Calcutta variety. Oats for green feed should be grown about the end of March, but if the seed was sown with the intention of reaping for grain or cutting for hay, best results would be obtained from a July seeding. To eradicate the weed locally known as “Blue Root,” the speaker advised working the land with a single-furrow plough to a depth of about 7in. or 8in. during the early summer months. The stock could then be turned on to the paddock, and they would eat the roots of the plants. To destroy sorrel, he suggested ploughing the land at a shallow depth, and keeping it well scarified. Peas, in addition to being an excellent crop for pig and poultry feed, also improved the soil. A mixture of mutton fat and castor oil was recommended as a dressing for hares. Mr. Nicholls tabled an excellent sample of Scotch Grey oats. Mr. J. F. Boardman stated that he had harvested 70 bags of oats from a sowing of three bags of seed. Mr. Nicholls also exhibited samples of Hubam clover. The first sample was taken from a plot sown early in December with irrigation, and measured 3ft. 3in. in length. Sample No. 2 was also sown early in December, but did not receive any water and at the time of cutting was 14in. high. The third sample was taken from a plot that was sown early in October. The plot did not receive any irrigation, and at the time of cutting the crop measured 3ft. 6in. high. Mr. Whitehead also stated that he had sown seed in September. The crop had not been irrigated, and was at the present time 6ft. high and out in flower.

**MANURING AND PAINTING.**—A further meeting was held on April 26th, when the two subjects mentioned in the above title were discussed, as the outcome of a paper contributed by Mr. W. A. Palamountain. The speaker remarked on the small value placed on the large amount of farmyard manure that accumulated on the farm. It was certainly the best manure to use, and was of much value on clay soils for keeping the land open. He had made much use of farmyard manure, especially as a top dressing on lucerne, where good results had been achieved. The influence of the manure held good on the land for at least four years. Painting of buildings and agricultural implements was also another important matter to keep in view, because neglect was conducive to deterioration and rusting of ironwork. The following members joined in the discussion:—Messrs. K. McIntosh, J. P. Mahoney, G. Dickson, J. Nicholls, T. Tarrant, and J. Boardman.

## MOUNT GAMBIER (Average annual rainfall, 32in.).

April 14th.

Mr. W. D. Robinson contributed a paper, “Farming Observations,” which contained interesting references to the principal sources of primary production in the South-East. The district was noted for its high-class sheep and wool. Bright prospects were held out for the dairying industry, particularly if farmers made efforts to get rid of unprofitable cows and grew fodder crops. He expressed surprise at finding a potato of such low quality as the Pinkeye predominant to a large extent with the growers. Referring to onions, the speaker believed that the onion land in their district required a spell. Such land should be turned into grazing paddocks for at least two years.

## MOUNT GAMBIER (Average annual rainfall, 32in.).

May 12th.

**ENSILAGE.**—Mr. R. P. Pritchard read the following paper:—“The value of ensilage is not as fully realised in this district as it should be. The amount of ensilage made and fed to stock is extremely small, when compared with the value of this fodder. The reason for this is perhaps the cost of building a silo; but I am convinced that there is a section of the stock-feeding community who

regard ensilage as a mere fad of people who must be continually experimenting. Ensilage is by no means a new commodity. It has been used for a great many years in many countries where it would be most difficult to carry on dairying successfully without it. The most satisfactory of overground silos is probably that made of reinforced concrete; but I think that the local limestone, cement washed inside, would make a structure that would be entirely satisfactory. A silo measuring 15ft. inside diameter and 30ft. high would hold about 100 tons of ensilage. The material needs to be chaffed, and either elevated or blown into the top of the silo, and thoroughly trampled down during the process of filling the silo. I have always used oats to fill my silo, because it is the easiest cereal to grow, and, besides, it gives the greatest bulk of green stuff to the acre. There seems to be very little ability needed in the making of satisfactory ensilage. I have filled my silo six or seven times, and have had no failures. The work is done at a time when other work is not pressing, because it comes about a week before hay cutting commences. The work is continued from day to day, regardless of weather conditions, until the silo is filled. When the silo is filled it is advisable to wait for a few days, when the ensilage will be found to have settled down a good deal. Several more loads of green stuff can then be added, and the silo brought up to the top level. This can be repeated if time permits, and it ensures the silo being filled to its extreme capacity. The mass should then be weighted. I use posts, because they are the easiest to handle. When the time comes to commence using the ensilage, I have found that the best plan is to bag the material and throw it into the vehicle which is to take it out to the stock. It can then be easily transferred into the mangers. Once the stock become used to the peculiar taste of the ensilage, there will be no need to clean these receptacles out between meals. The cows will do this thoroughly, for they become extremely fond of ensilage. The cows which have been proved by herdstesting to be the best in the herd can, in most cases, profitably have bran, crushed oats or barley, or other concentrated food added to their ration. The chief points to remember about ensilage are:—Cut the green stuff for ensilage when it has almost attained its maximum growth and is still in a succulent and juicy state. The sooner it is chaffed into the silo after it is cut the better, particularly during the heat of the day. The ensilage must be trampled continually and thoroughly all the time that the silo is being filled. The mass should be well weighted when the silo has been filled. When removing the day's supply from the silo, a layer sufficient to provide that feed should be raked off the whole surface of the mass. If it is taken out in holes, a good deal of waste takes place. Do not miss a chance of refilling the silo. It is your bank, and if a timely rain causes you to have a large surplus of summer fodder, such as maize, sorghum, Sudan grass, or the like, avail yourself of the chance thus offered of making an entry on the credit side. If it is found that the ensilage is not needed, owing to a prolific growth of grass, so much the better. It will be there the following year, and will not have deteriorated. Ensilage is not attacked by fire, decay, or vermin, and is an entirely satisfactory foodstuff at all times." In the discussion that followed the reading of the paper, Mr. Pritchard said he had met unqualified success in the making of stack ensilage. He had cut up a quantity of green stuffs, and put it in a heap. It quickly sank with its own weight. After it had been in the stack for a time, it was fed to the cows. Certain portions had first been discarded, and considered no good, but when the stock were put into the paddock everything was eaten. He advised all those who did not wish to incur the expense of building a silo to make stack ensilage. In his case, the ensilage did not have to remain in the weather during the winter. It would be necessary to make a shelter of some kind for it. However, there was no doubt that a silo was an immense advantage, and the ensilage in it would last for an indefinite period. The cost of a silo which would contain 75 tons would be approximately £100. He had secured a silo made as recommended by the Victorian Department of Agriculture, but he would not advise members to use it, or build one on similar lines, as the iron used in the construction was corroded by the moisture in the ensilage. A silo made from freestone would be satisfactory. In his opinion the silo should be made a trifle smaller at the bottom than at the top, with tapering sides. This enabled all air to escape when the silo was being filled. There was no possibility of the freestone being unable to support the weight of ensilage, because he had found from experience that the stuff had a tendency

to shrink and not to expand. It was almost essential that the green stuff should be chaffed, as it would not be possible to put nearly so much in the silo otherwise, and therefore the mass would not be so compact, which was an essential factor. He had his material cut 1 in. long. The machine used for cutting, although it worked on the principle of a chaffcutter, was far quicker, and as much as 25 tons an hour had been put through. The Chairman (Mr. W. Manser) said he had had a stack of ensilage some time ago. It had been covered with earth, and had lasted three years, and was quite good when fed to the cattle. Mr. A. A. Sasanowsky said ensilage was one of those things that dairymen did not seem to take up. It was one of the simplest things to make, and was a great advantage. They had a large dairying district in the vicinity of Mount Gambier. It was most surprising that ensilage was not made more generally, but perhaps it was on account of the cost of a silo. He did not think that ensilage alone was a sufficient food for stock, but held that some other food should be given with it. In America every farm, of no matter what size, boasted a silo. Surely, if it was so necessary there, it was equally so in Mount Gambier. They had had a severe lesson recently, and it should be a warning to farmers to conserve some fodder. He did not favor the construction of silos with freestone, and considered concrete would be far better. Mr. Pritchard said, in his experience, a 75-ton silo was not too large for any dairyman; in fact, he could have used two. Five men were necessary when the silo was being filled.—Some fine samples of apples grown in Western Australia were tabled by Mr. G. H. Kilsby, and admired by the members. Mr. J. Livingston, in reference to some excellent samples of sugar beet tabled by him, said he had grown the beet at Kongorong in particularly dry weather, thus testifying to the suitability of the land for the raising of the root. He had forwarded samples to the Maffra sugar beet factory, and the analysis revealed 17 per cent. of sugar. Not only was the root excellent for its sugar, but all through the dry period he had pulled the lower leaves off the beet and fed them to his cows, with excellent results. He had been growing beet since 1911, when he returned from a tour in Europe, and had been impressed with the use it was put to there. He hoped that at some future date a factory would be established at Mount Gambier. The cost was possibly prohibitive, but the Government had offered to erect a mill when a guarantee of 3,000 acres for five years was made. He had already received promises of 2,000 acres, and if the remainder was not forthcoming, no doubt a syndicate could be formed to grow the balance.

#### NARACOOORTE (Average annual rainfall, 22.60 in.).

February 10th.—Present: 19 members and five visitors.

THE IMPROVEMENT OF PASTURES.—Mr. L. J. Cook (Manager of the Kybybolite Experimental Farm) contributed the following paper on this subject:—"With the present good prices prevailing for wool," he said, "every attention should be given to the improvement of pastures. Some soils will not lend themselves to payable cultivation at all, others require periodical cultivations interspersed with periods of temporary pasture, whilst others lend themselves to the continual cultivation of crops. Our considerations will naturally apply to the first two classes of soils. The means of improving our pastures are—1. Manuring, or top-dressing. 2. Encouraging the natural and naturalised grasses and edible plants, and checking the spread of plants of inferior feeding value. 3. Establishing grasses and plants that will thrive, and produce more and better feed than the natural plants. 4. Systematic handling of stock, and management of pastures. 5. Cultivation. In regard to No. 1 the Director of Agriculture (Prof. A. J. Perkins) has already shown conclusively that there is a lack of lime and phosphates in South-Eastern soils, and suggests that suitable dressings of lime and neutral phosphatic manures would have an effect of improving the herbage and also the livestock reared in the district. Since that time some of us have either tried these fertilisers, or have seen results of their trial. I will say without hesitation that the application of 1 ton of lime and an annual dressing of 1 cwt. mineral super per acre will more than double the livestock carrying capacity of the cementy ironstone loams of Kybybolite. Based on the lines of the Director's address, a set of six plots of 3½ acres area each, were set out on the Kybybolite Farm in 1919, on new land that was

## AGRICULTURAL PUBLICATIONS.

The following publications have been issued and are available for distribution at prices mentioned:—

- "First Aid to the Horse," by F. E. Place, B.V.Sc., M.R.C.V.S., &c.; price, 3s.; posted, 3s. 2d.  
 "Fruit Tree and Grape Vine Pruning," by Geo. Quinn; price, 3s. 6d.; posted, 4s. 3d.  
 "Poultry Manual," by D. F. Laurie; price, 1s. 3d.; posted, 1s. 5d.  
 "Vinegrower's Manual," by A. Sutherland (1892); price, 6d.; posted, 7d.

Journal of the Department of Agriculture, 1s. per annum in advance; 3d. per single copy to residents in South Australia. Other places, 2s. 6d. per annum; single copies, 6d. each.

The following bulletins and leaflets may be obtained by residents of South Australia by sending a 1d. stamp for postage of each copy required; other places, 3d. each;—

All communications must be addressed—Editor, "Journal of Agriculture," Victoria Square, Adelaide.

Subject.	Bulletin No.	Subject.	Bulletin No.
ANDREW, H. W., Botanical Assistant— Seeds Imported from Abroad into S.A. ....	109	PLACE, F. E., D.V.Sc., M.R.C.V.S., M.R.A.S.E.— Bloodworms .....	LXV.
BEAUMONT, CHAS. H.— Orchards and Orchard Work .....	143	Bot Flies and Bots .....	LXVI.
BELL, L. B., D.V.Sc.— Forage Poisoning .....	167	Cow, Some Common Troubles of the .....	139
COLEBATCH, W. J., B.Sc. (Agric.), M.R.C.V.S.— Barrenness in Livestock .....	XLVIII.	Diet Deficiency and Disease in Live Stock .....	77
Conversion of Fodder Crops into Silage .....	LXVII.	General Management of Draught Horses on the Average Farm, Notes on .....	182
Dietetic Value of Cereals and their Pro- ducts .....	155	Horse, The, General Management, &c. ....	138
Field Pease, Production and Utilisation of .....	140	Medicine Shelf, The .....	85
Pigs, General Management and Breeding of .....	141	Milk Fever or Drop after Calving .....	XXXIII.
Roseworthy Agricultural College—Harvest Report— 1914-15 .....	90	Some Sheep Worms .....	LIV.
1916-17 .....	114	QUINN, GEO., Horticultural Instructor, &c.— Apple Packing .....	68
1918-19 .....	123	Codlin Moth, The .....	XIV.
1919-20 .....	136	Cotton Trials at Berri .....	169
HODGE, C. P.— Hints for Settlers Starting in Mallee Lands .....	—	Fruit Trees and Vines, Remedies for Diseases of .....	70
LORTON, C. A., B.V.Sc., Government Veteri- nary Surgeon— Diagnosis of Disease in Farm Animals .....	133	Olive Growing, Notes on .....	145
PERRINS, Prof. ABTHUR J., Director of Agri- culture— Agricultural Education in South Australia Ayers and Hanson, Possible Improvements in Farming Practices of Hundreds of ...	154 95	Orange in South Australia .....	107
Black Japanese Millet on Reclaimed Murray Swamps .....	XXL	Select List of Fruit Trees, &c. ....	91
Dairy Cattle, Suggested Rations for .....	XXI.	Table Grapes .....	LIII.
Ensilage, Use and Making .....	146	SPAFFORD, W. J., Superintendent Experi- mental Work— Ensilage, its Manufacture and Use .....	128
Farm Horses, Suggested Rations for .....	XXII.	Experimental Farm Harvest Reports— 1916-17 .....	119
Farm Livestock, How to Lay Foundations of Good Strains .....	XXXI.	1917-18 .....	124
Forage Crops in the South-East .....	92	1918-19 .....	129
Livestock, Duties of Farmers as Reapers of for the State .....	116	1919-20 .....	133
Livestock Foodstuffs and Feeding Rations, Equivalence of .....	102	1920-21 .....	157
Manures in their Relation to Present Day S.A. Farming .....	148	1921-22 .....	185
Manuring of South-Eastern Pasture Lands National Aspects of Guaranteed Minimum Price for Wheat .....	122 121	Fertilizers for the Home Garden .....	160
Phosphatic Manures .....	87	Fodder Crops on Reclaimed Swamp Lands, Pie Raking where Lucerne can be Success- fully Grown in S.A. ....	127 149
Pigs, Feeding Tests with .....	163	Soils and their Management .....	162
Pigs, A Neglected Source of National Wealth Possibilities of Increased Production in our Rural Industries .....	164 126	Wheat Crops—Some Diseases of, and their Treatment .....	110
Rise and Progress of the Fruitgrowing Areas of the Murray .....	168	Wheats, Cross Fertilization of .....	XLII.
Roseworthy Agricultural College— Harvest Report, 1910 .....	63	GENERAL AND REPRINTS— Beekeeping Notes—Foul Brood: Its Symptoms and Treatment .....	XIII. 147
Harvest Report, 1912-13 .....	78	Berri Experimental Orchard, Second Report Dry Farming Conference, 1911, Report .....	1. XLIX.
Harvest Report, 1913-14 .....	83	Fruit Nomenclature .....	66
Fourth Report, Permanent Experimental Field, 1909-10 .....	65	Congress, Agricultural Bureau, 1911 .....	86
Fifth Report, Permanent Experimental Field, 1906-14 .....	89	Congress, Agricultural Bureau, 1914 .....	137
Rotation of Crops, 1916 .....	109	Heri Testing Societies, Regulations .....	90
Rotation of Crops, 1919 .....	125	Hints to New Settlers on Irrigation Areas Milking of Cows .....	VI. XXX.
Training and Research .....	115	Ostrich, The .....	71.
		River Murray Herd Testing Association, Second Report .....	84
		Sheep Tick and Sheep Louse .....	19
		Spaying of Cows .....	159
		Tobacco, Growing and Curing .....	159
		CONFERENCE REPORTS— Eyre's Peninsula District, 1920 .....	158
		Hills District, 1920 .....	152
		Lower Northern District, 1920 .....	142
		Lower Northern District, 1921 .....	156
		Mid-Northern District, 1920 .....	134
		Mid-Northern District, 1921 .....	181
		Mid-Northern District, 1922 .....	151
		Murray Lands District, 1920 .....	144
		River Murray District, 1920 .....	165
		River Murray District, 1920 .....	185
		South-Eastern District, 1920 .....	185

THE AGRICULTURAL BUREAU.—Particulars of this Organization, of which every farmer should be a member, can be had on application to the Department.

cleared of all growing trees, but had received no cultivation. The idea was to test the local low grade phosphate rock against a dressing of lime and super. Two plots were set aside for the local 'aluminium phosphate,' which was crushed to a powder, but not treated with the sulphuric acid. One plot received 1 ton per acre in the autumn of 1919, and has received none since. The other plot was given 11 cwt. per acre in 1919, and 1 cwt. per acre each year since, the plot eventually to receive the full amount of 1 ton per acre distributed over a period of 10 years. Two plots were also set out, in which was used low grade crushed calcium phosphate rock instead of the local aluminium phosphate. One plot was given 1 ton of air slacked lime to the acre in 1919, and 1 cwt. of 36.38 per cent. mineral superphosphate annually each year since. The sixth plot was left as a check without any manure. The phosphate top dressings have been put on in the autumn of each year through an ordinary drill, so that except for the slight marks made by the steels of the drill, the surface of the plot has never been broken. All the plots were fenced and made securely sheep proof, and have been fed at different periods during each year, all plots being fed off as nearly as possible simultaneously and with similar class, aged, and conditioned sheep. The improvement of herbage has been most marked. In quantity the plot dressed with lime and super stood out in marked contrast to the others, and this immediate past season easily carried three times the amount of growth of that on the no-manure plot. The feed on this plot made quick growth in the early season, and kept well ahead of the others in the winter months. In the flush of the season not a bare patch of soil could be found on the plot. The rock phosphate plots carried considerably more growth than the no-manure plot, but nothing to compare with plot No. 3 (lime and super). They appear to be improving each year, showing clearly that the phosphate is gradually becoming available to plants. The quality of feed is improving much in the same proportion. The chief natural grass on the area, namely, 'Wallaby,' has improved materially, in both number of plants and size of individual plants in all of the top-dressed plots. The somewhat useless silver grass made rather a prominent show on the lime and super plot, but it did not choke out much of the better plants. It was noticeable that *Hordeum maritimum*, that small sea barley grass of poor feed value that abounds rather thickly, especially on the wetter portions of fields, has been much crowded out on all the top-dressed plots. It is also noticeable that the species of juncus (reed-like plant that grows in the wet natural depressions of the land) has also become much less on the manured plots. A variety of the English dandelion is becoming more noticeable in the improved plots. Most important of all plants is the very much improved growth of the naturalised hop clover. Although not one of the really good feeding clovers, it is nevertheless one of that class of plants that we are always anxious to increase in our fields, because of their better feeding qualities. Only odd plants of this clover could be found on the no-manured plot, whereas it is making good headway on all of the dressed plots, being quite thick on the rock phosphate ones, but an absolute dense mass on the lime and super one. The foregoing is a comparative description of the growths of the plots as they appeared during 1922, four years after the top dressings commenced. To put this comparison into figures I can quote the following as being the actual number of sheep carried per acre annually during the last two years:—Plot 1—1 ton aluminium phosphate in 1919; 1.49 sheep per acre. Plot 2—11 cwt. aluminium phosphate in 1919, and 1 cwt. aluminium phosphate in 1920, 1921, and 1922; 1.52 sheep per acre. Plot 3—1 ton lime in 1919, and 1 cwt. super in 1919, 1920, 1921, and 1922; 1.95 sheep per acre. Plot 4—11 cwt. calcium phosphate in 1919, and 1 cwt. calcium phosphate in 1920, 1921, and 1922; 1.34 sheep per acre. Plot 5—1 ton calcium phosphate in 1919; 1.30 sheep per acre. Plot 6—No manure; 0.97 sheep per acre. I am not prepared to say that these plots would carry these actual numbers of sheep in good condition during the whole course of a year, because it has not been practicable for us to keep the plots continually stocked. However, as plots were all fed as near as possible at the same time the results are sufficient to use as a comparison. As regards the second improvement suggested by the Director, namely that of the livestock of the district, it is not possible to give any figures relative to the improved condition of the sheep, or to the increased production of wool, that undoubtedly would have taken place through the improved feed. However, we know that soils containing sufficient

lime and phosphate produce much better framed and more healthy stock, and we must find that as our soils become enriched with these foods, so will our stock thrive and improve. In future years it is to be hoped that we shall be able to secure definite figures on this point, and couple them with the increased carrying capacity. I feel sure that over a fair number of years a substantial profit will be secured from the lime and super plots. 2. Encouraging the good natural and naturalised grasses and edible plants, and checking the spread of plants of inferior feeding value. Much improvement to pastures can be wrought by attention to this point. Noxious weeds only take the place of other more serviceable plants, and wherever possible should be repressed. Liming and manuring help considerably to sweeten the soil, and in sweet soil clovers and good grasses are more able to hold their own against those plants liking sour soil conditions, and which usually are of poor feeding value. Little or no work has as yet been done in this country with regard to making a detailed botanical analysis of plants growing in pastures. This is work that we intend investigating in the future. With temporary pastures, sometimes unsatisfactory weeds become very thick, and it is often necessary and wise to put the fields under cultivation to clean them. 3. Establishing grasses and plants that will thrive, and produce more and better feed than the natural plants. Continued trials with grasses and plants that are likely to suit our conditions, show that much will be derived in the future by this means of improving, and at present much gratification is felt in the growth of Subterranean clover and Wimmera rye grass. Those of you who have not seen what these two plants are doing should take the first opportunity available to get in touch with them, and give them a trial. Subterranean clover especially is thriving wonderfully well where it has been given an opportunity to establish, and not been stinted for phosphatic manure. Unlike most clovers it appears to thrive without the aid of lime, and at present promises to give results at a cheaper cost than applying lime. This clover is an annual, but readily re-seeds itself, and if not fed heavily the first year it can be established fairly cheaply. Four pounds of seed per acre will give a good stand quickly, but many good stands have been started with 1½ lbs. or 2 lbs. It is a most useful plant to establish on arable soils that are required to be left temporarily under pasture. Wimmera rye grass is also an annual that will re-seed itself well. Our experience has been that if allowed to seed it will thrive for at least three seasons after planting. Sown with Subterranean clover it makes a very good mixture of fodder. Alsike clover has also given promise with us. It is a perennial clover, supposed to be a hybrid between the white and red clovers. It has successfully established itself with us on a number of occasions, but it has not given nearly as much bulk of feed as the Subterranean. However, it continues greener much longer into the summer and as a green fodder it is more valuable in that it is more palatable to stock, and has greater feeding value. The extra growth made by Subterranean would, however, more than counteract the poorer feed value. We will continue to keep it under trial with other clovers from which we have had some success. 4. The systematic handling of stock and management of pastures has in an indirect way something to do with the improvement of pastures, or at least the prevention of the deterioration of them. For instance, we all know what great harm can be done by overstocking. Good judgment is required in the feeding of a pasture; it is always better to remove stock a few days too soon than a few days too late, both for the benefit of the pasture and the stock. Whilst on this point, mention must be made of the rabbit; we should never forget what harm he does. I have heard it said that seven rabbits eat as much as one sheep. They do much damage in that they eat the sweet and better parts of the pasture, and eat them too close to their roots. 5. Cultivation—Cultivation of permanent pastures in this country is little availed of, but in older countries much benefit is derived from an occasional stir. Many of us know what a strengthening a cultivation gives to a lucerne plot, and it is not to be doubted that benefit would be derived by a light breaking of the surface of natural and naturalised pastures occasionally. However, care would have to be exercised, as there are quite a lot of our native grasses that will not stand uprooting, and only a narrow tined implement with tynes set well apart should be used. In conclusion, allow me to suggest that for the general improvement of pastures, and considering the high price of lime, much effort should be made to secure the most from the two plants Subterranean clover and Wimmera rye grass, coupled with frequent dressings of superphosphate."



NARACOOOTE (Average annual rainfall, 22.60in.).

April 21st.—Present: nine members.

**THE HORSE VERSUS MOTOR POWER.**—In the course of a paper dealing with this subject, Mr. J. H. Donoghue said that for the small farms of that district he gave pride of place to the horse. The tractor could only be used for a few special jobs on a fine day, and during wet weather had to be placed under cover in a shed. A team of young horses improved with work, but the same could not be said of the tractor. For a small farmer the tractor involved an outlay of a large sum of money, and the machine would have to be discarded after 10 years of work. Ten years would, of course, be the best part of the life of a horse, but it would not be a wise policy for the farmer to keep an animal for that period. He should have young horses coming on to help keep up the strength of the team. The farmer was able to get three or four years' work out of a young horse, and, if desired, the animal could then be sold for a good price. After the tractor had been worked for four years the farmer would have done well if he secured half the initial cost of the machine. All the spring fallowing could be done whilst the horses were being fed on grass, the only time that the horse had to be fed continuously was during seeding operations. The horses had to be cleaned and groomed, but the same could be said of the tractor, for unless it was cleaned, it would soon refuse to work. For all work such as chaffcutting, sawing wood, and pumping water for irrigation, the engine was undoubtedly to be preferred, whilst for business or pleasure the motor car had to be given pride of place, but it was an expensive luxury. Mr. W. E. Rogers agreed that on a small farm the work could be more economically performed by horses. Mr. W. Loller could not agree that the tractor had no merits over the horse. He remembered the tractor in use 40 years ago, and it had some merits then, although, being worked with steam, it was heavy and slow-going, and it was of little use in wet weather compared with horses. They knew that the tractor had done work in clearing scrub country for cultivation, which could never have been done by the horse. The tractors had, however, been improved since then, and he believed their day had come. They had been made lighter and easier to handle in every way, and they could get over a large extent of country in quick time. They could also go over all obstacles. They were comparatively cheap, and if compared with the cost of a good engine they were very cheap. He had experience of them, and so far as it had gone it was satisfactory. They would double the work of eight horses in a day of cultivation. The speed at which they went with a spring-tooth cultivator behind them improved the land for cultivation and assisted in obtaining heavier crops. They could work the tractor up to eight miles an hour. He worked a tractor with a 16-tine drill and harrows behind it, and he could do two acres to one with it compared with horses. He considered that the tractor was more suitable for a small farm than horses, as they could get closer up to the fences with it without knocking them about. The tractor was useful for other jobs on the farm. The engine had good power to work a sawbench and a chaffcutter, and it would remove large logs with the greatest of ease. It was better to work machinery with engine power than with horses, and if they used the tractor for working the sawbench and chaffcutter they would not require an engine. He felt certain that the day of the tractor had come, and the farmer would benefit considerably by its use. Mr. J. Corner thought the horse was the more useful and the less expensive power on the ordinary farm. The day of the tractor had not yet come, but it would probably come when made more adaptable and cost less to repair. A horse lasted a good while with ordinary care, and they could get a good one for £10 or £15. A tractor if kept at work did not last many years. The horse was suitable for all kinds of work on the farm which the tractor could not perform. The Chairman said the tractor would yet be made lighter, and more suitable for general farm work, but it was not yet as generally useful as the horse. Mr. G. J. Turnbull held the opinion that the tractor was coming, especially for large areas of cultivation.

#### RENDELSHAM.

April 24th.

**RYE.**—Under the title, "Is There No Place for Rye on the Farm?" the following paper was contributed by the Hon. Secretary (Mr. S. S. Smith):—"Whilst no one would recommend that this grain should replace oats, wheat, or barley as a

cereal crop, there is nevertheless a place for it in the general farm system of the South-East. Rye is one of the best crops to adapt itself to poor, light, or sandy soils. It has one special aptitude—that of being the best cereal to return a crop on newly reclaimed swamp lands; it submits to acid and salt conditions that are resented by other plants. It has been called very frequently ‘the grain of poverty,’ because it will produce fair crops on such soils and under adverse conditions of climate where other varieties of cereals would not thrive. There is, in some countries, the common expression ‘that land is too poor to grow rye.’ Possibly, even with us, it may be that for purely sentimental reasons rye is so seldom grown, but actually the cause is that the usefulness of the crop is not appreciated. Autumn-sown rye provides excellent feeding for all classes of stock in the early spring. It will supply good grazing before the grass of the pasture has made any headway. It is from this standpoint that rye in this country derives its greatest value. The crop, if it is allowed to mature, supplies feed for pigs and poultry. Rye in this district will be more used for feeding off, and if it is given time to grow, after feeding down, it is a valuable addition to poor soils if ploughed in as a green manure. Although rye is a crop that will succeed on poor soils and those lacking in vegetable matter, it goes without saying that the best crops are obtained from fertile and well-cultivated soil. Poor soil must be manured if the crop is expected to furnish a fair amount of feed for stock, and in such soils rye will respond to a light dressing of nitrogenous fertiliser, in addition to the usual phosphates. It must be remembered that any forage crop—and rye is no exception—takes a great deal of plant food out of the ground. It has to be sown thickly for that purpose, hence the demand for liberal manuring. Rye may be sown now for spring feeding, and at the rate of 1 bush, to 2 bush, to the acre.

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#### RENDELSHAM.

March 28th.—Present: 17 members.

Mr. E. E. Stewart read an interesting paper, “Colt Breaking.” The main features in colt breaking, he pointed out, were on every occasion to try and gain the confidence of the horse, and to do that it was necessary to treat the animal with kindness and firmness. He believed that the quickest and best method to teach a colt to be quiet after it had been handled and mouthed was to work the animal in a team of older horses.

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ALLANDALE EAST, May 10th.—The Assistant Dairy Expert (Mr. H. J. Apps) attended the meeting and delivered an address, “Breeds and Diseases of Dairy Cattle.”

KALANGADOO, May 12th.—The meeting was devoted to a discussion on the recent Conference of South-Eastern Branches. Several other matters of local interest were also brought before the meeting.

KYBYBOLITE, May 3rd.—Mr. Cother delivered an address, “Surgical First Aid,” in which he dealt with the causes, effect, detection, and treatment of lameness in horses.

MOUNT SCHANK, May 1st.—Mr. J. P. Mahoney contributed a paper in which he gave an account of a visit to the Kybybolite Experimental Farm. An interesting discussion on the summer fodders grown on the farm ensued.

PENOLA, April 14th.—Mr. E. S. Alecock (Field Officer for the South-Eastern Districts) attended the meeting and addressed the members on the proposal of the department to inaugurate crop competitions.

PENOLA, May 5th.—Mr. Adamson initiated a discussion, “Rabbit Destruction,” and after members had expressed their opinions it was resolved that district councils have the power to deal with rabbits on unoccupied Crown lands

the same as on private holdings, and that the Government be asked to take steps to compel district councils to enforce the Vermin Destruction Act. It was decided to send a copy of the resolution to all Branches of the Agricultural Bureau in the South-East. The report of the delegates to the Kalangadoo Conference was also received and discussed.

TATIARA, May 19th.—The Hon. Secretary (Mr. C. S. Wylie) gave a report of the recent Conference of South-Eastern Branches. Referring to the value of manure for sandy soils, Mr. A. Wilson said that it had been demonstrated that farmyard manure produced excellent results when applied to soil consisting almost of pure sand. He also spoke of the great advantage present-day farmers possessed in being able to attend such agricultural Conferences as that which had recently been held at Ksclangadoo. The men on the land were able to obtain expert advice on subjects with which they were not familiar, and the adoption of better methods of working the land were brought forward for discussion.

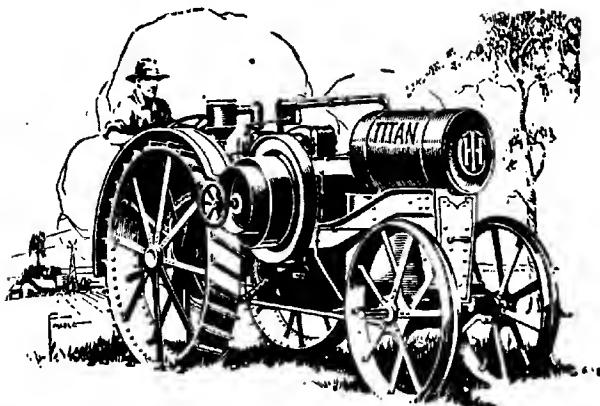
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## TO ADVERTISERS.

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secured from this type of crop by growing the plants in rows, and keeping the land between the rows thoroughly cultivated throughout the growing period. For your particular conditions," says the Superintendent of Experimental Work (Mr. W. J. Spafford), advising a correspondent in the Jamestown district, "the method of growing the crop can be briefly stated as:—(1) Sow the seed in rows about 30in. apart (every fourth hoe of the ordinary seed drill), in September or October, using 7lbs. to 10lbs. of seed per acre. (2) Drill in at seeding about 2cwt. of superphosphate per acre. (3) As soon as the plants have made sufficient growth to enable you to see the rows distinctly, cultivate with a horse-hoe; again cultivate whenever the land sets hard or weeds make it necessary. (4) Cut and feed to stock, or graze off, as soon as the majority of the seed heads are visible. (5) Again cultivate as soon as first crop has been utilised, when a very fair second crop can be expected."

#### **Chaff Dealer Fined.**

For not giving the purchaser of a bag of chaff a note setting out the weight of the chaff sold, a suburban chaff dealer was fined in the Adelaide Police Court during the month. The dealer was prosecuted for infringement of the provisions of the Chaff Act of 1922, which requires the seller of chaff to give the buyer a note showing the exact weight of the parcel sold. The Act of 1922 abolished the standard weight for a bag of chaff, and substituted the obligation mentioned as a protection to buyers. A strict adherence to the provisions of the Act is to be insisted on.

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## INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Replies supplied by F. MURRAY JONES, B.V.Sc., M.R.C.V.S., Assistant Government Veterinary Surgeon.]

Hon. Secretary, Agricultural Bureau, Wudinna, has (1) mare with running sore between thigh and rump, and (2) horse with a growth in the corner of the eye.

Reply—(1) *Re* mare with discharging wound. First ascertain that no foreign body, such as a splinter from a stake or other substance, is present; if present, remove with pincers. Irrigate with a syringe containing common salt water, a teaspoonful to a pint of warm water. Afterwards use weak solution of lysol, a teaspoonful to a pint. Afterwards dust over some boracic powder. (2) The only treatment is surgical, namely, removal of growth.

"E. G. C.," Everard Central, has mare with swelling at the back of the near-side jaw.

Reply—The swelling is a strangle abscess that has failed to burst, and has resulted in a thickening of the skin. I would advise you to apply the following blister, obtainable from any chemist:—Red iodide of mercury blister, the strength of 1 in 8. Apply to affected spot, rub in well for 15 min.; next day smear over with vaseline. Give her a small teaspoonful of powdered nux vomica in treacle on tongue once daily.

"J. B. A.," Barmera, has mare, eight years, swelling under off jaw bone. (2) Inquirer also asks name of good book dealing with veterinary diseases.

Reply—(1) *Re* mare, swelling jaw. I would advise you to apply a liniment or blister to swelling. Iodine or turpentine liniment would answer the purpose. If swelling results in abscess with pus contained, this must be opened and irrigated with weak solution of lysol, and treated as an ordinary wound. Feed laxative food and liberal supply of Epsom salts in food or drinking water. (2) The most useful book on veterinary diseases for Australia is Captain Hayes' "Points of the Horse."

"C. R.," Cherry Gardens, has pony with a dry and rough skin. The pony is continually biting itself, and has rubbed the hair off its neck and shoulders.

Reply—If the animal is stabled at night, I would suggest clipping the body. Afterwards apply the following mixture:—Oil of tar, 2ozs.; black sulphur, 2ozs.; soft soap, 4ozs.; methylated spirits, 4ozs. Rub into the skin with brush. Allow it to dry, and repeat in five days' time.

Hon. Secretary, Agricultural Bureau, Winkie, asks cause and treatment for cow in milk with hard lump in the udder above one teat.

Reply—Everything depends on the nature of the lump. Probably in this case the lump is the result of mastitis. The only satisfactory treatment is that of a surgical character when animal is dry. An occasional massage with salad oil may assist in its reduction.

"W. H. H.," Butler, has stallion constantly rubbing itself, particularly the sides of the head. Sores have developed, and most of the hair has been rubbed off.

Reply—This irritation is due to either parasitic infection of skin or overheating of blood. I am inclined to think the former is the cause in this case. Obtain

some hair with roots plucked from region showing irritation, also scraping of dead skin in affected areas. Place in small matchbox or bottle, and forward for examination. Apply the following to parts:—Oil of tar, 1 part; black sulphur, 1 part; soft soap, 2 parts; methylated spirits, 2 parts (once daily). Give 3ozs. to 4ozs. of Epsom salts in feed daily, and wash the head stall in disinfectant.

“E. E. R.,” Narridy, has mare with a large lump under belly. Mare is losing condition.

Reply—From your letter I gather this swelling to be ventral hernia (rupture). This being so, the only treatment under circumstances must be of a surgical character. This would require skilled attention. Sometimes they work like this for a long time without apparently suffering, but there is always the danger of complications setting in, with grave results.

“E. W. P.,” White’s River, has cow, six years old, with lump on the throat.

Reply—Any lumpy condition in this region should be regarded as suspicious. It may be either a so-called grass seed abscess, or even tubercular, or cancerous. Advise the district stock inspector to examine the cow for you.

“L. H. P.,” Parilla, has foal, eight months old, with lump on neck.

Reply—I would advise you to examine wound carefully for evidence of foreign body, such as splinter of wood, &c. If present, remove. Wash with warm water and washing soda, and irrigate wound with solution of lysol (one teaspoonful to a pint of water). If edges are hard and reluctant to heal, apply carefully to edge only a light dressing of blister. For the sore itself, apply a little zinc oxide ointment daily.

Hon. Secretary, Agricultural Bureau, Wirrabara, reports horse in good condition, but is continually “dribbling.”

Reply—This is usually due to some dental irregularity. I would advise you to carefully examine the mouth and teeth for any laceration on the inside of the cheek, and also for rough surfaces or edges of the teeth. If this is so, have the teeth dressed with a dental file, and wash the mouth with a solution of Condy’s fluid.

“S. H.,” Gawler Railway P.O., has cow whose hoofs have grown to an abnormal degree, so that she has difficulty in walking. Cow is also stiff in front quarters.

Reply—The abnormal growth of horn is not a disease in itself, although it frequently follows on a case of laminitis. The treatment in that case is to rasp the toes back as far as possible. In a case of this trouble the tendency of the animal is to take the weight on the heels. You had better not interfere until after the cow has calved, when it is possible the gait might improve.

“J. R. W.,” Strathalbyn, has draught mare suffering from urinary calculus.

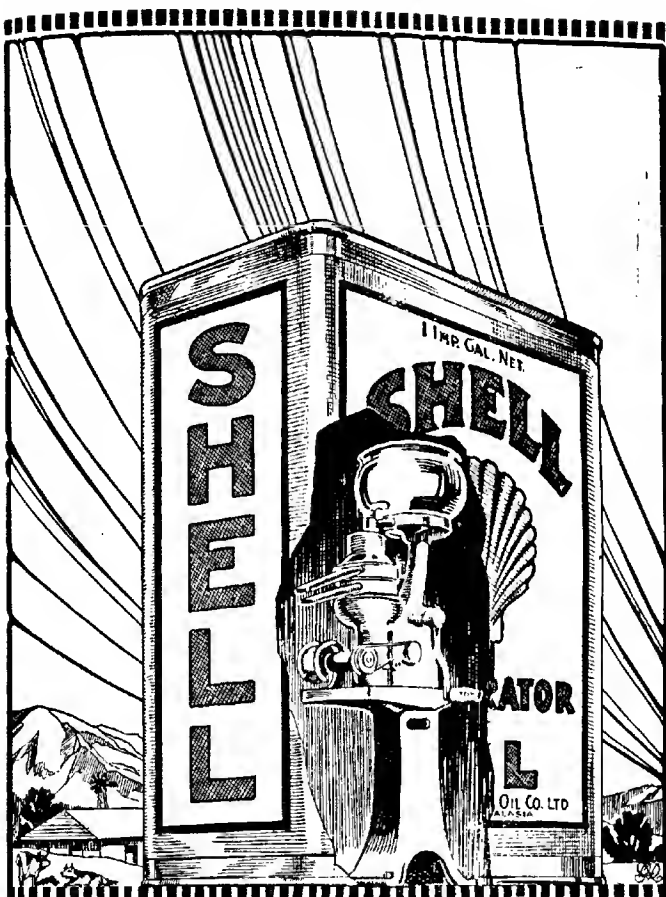
Reply—Much depends on whether the calculi are situated in the kidney, ureters, or bladder. I should advise you to have the mare examined by a qualified veterinary surgeon. When pains are severe, give it two grains laudanum with one pint of water as a drench, and apply hot foment to the loins. If stone is in the bladder, an operation is often necessary.

“R. H.,” Aldgate, reports litter of pigs very weak in the loins. Drag the hind quarters, and are practically unable to rise.

Reply—The condition may be due to injury or parasites. Give a teaspoonful of castor oil and two drops of oil of chenopodium once daily for three to four days. Keep the animals comfortable and warm.

“P. G. W.,” Elbow Hill, asks (1) if a mare with bridle teeth would breed, and (2) cause and remedy for greasy heels.

Reply—(1) No reason is known why mares with so-called bridle teeth should not conceive. (2) Greasy heels.—Cause—Anything that contributes to inflammation of the skin and overfeeding, but usually irritation from dirt or from unsanitary stables. Treatment—Good hygienic conditions, regular diet, and laxative food. Apply lead acetate, 4 drams; laudanum, 3ozs.; water, 2 pints—once daily; zinc oxide ointment.



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"A. G. B.," Cleve, has horse with white film over the eye, which is discharging watery fluid. The horse has also broken out in sores under the tail, sheath, and inside of the mouth.

Reply—I would advise you to bathe the eye with boracic solution—one teaspoonful to the pint of pure water—once a day. Continue for four or five days. For the sores, wash with lysol solution—one teaspoonful to pint—and apply zinc ointment.

Hon. Secretary Weavers Agricultural Bureau, Stansbury, asks cure for mare whose shoulder has been "slipped" for six months.

Reply—I am afraid that the owner has delayed it too long to affect complete recovery. Even when attended to at the time of injury, the great difficulty is to retain the limb in normal position when reduced. The operation requires some knowledge of the parts concerned. The movement for reduction consists of raising the forelimb and describing a series of movements, such as inwards, outwards, backwards, and forwards. When reducing takes place the head of the humerus joins the cavity of the scapula with a "snapping" noise.

"C. L. B.," Karoonda, has horse with slobbers and foul-smelling breath.

Reply—Examine the mouth thoroughly with aid of a mouth gag, and inspect the back molar teeth. You will probably find one decayed or worn down retaining decomposed food. Also look for laceration on inside of cheek. Wash mouth out with weak solution of Condy's fluid or alum water. If teeth are irregular, have them dressed with a dental rasp.

[Replies supplied by C. A. LOXTON, B.V.Sc., Government Veterinary Surgeon.]

Hon. Secretary, Agricultural Bureau, Whyte-Yarcowie, reports heifer three weeks after calving went off milk, lame on front legs, and when lying down the tongue protrudes from the mouth and the bottom jaw hangs loose.

Reply—I do not consider that the trouble was due to paddy melons. Experimental feeding of cattle with paddy melons in connection with paddy melon blindness did not result in any disturbance in the general health of experimental animals. The symptoms are those of toxemia, for which the preventive treatment recommended is as follows:—Provide good feed and water—a balanced ration is a most important preventive measure. Supply salt and bonemeal, 1oz. of each, twice daily in the feed, or in a lick. The latter is especially useful during the late summer and early autumn.

"W. S.," Leasingham—Your letter to hand re horse, seven years old, with abscess formation on the neck, swelling under the jaws, and lower part of neck, chest, and shoulders.

Reply—It would appear that further abscess formation is about to take place under the jaws, and that the lower swelling is due to the gravitation of discharge from the abscess half way down the neck. Examine both swellings carefully, and if you can detect any fluctuations (indicating the presence of fluid) you should make an opening so as to drain away the discharge. Make your incision through the skin first, and then enlarge it carefully. Do not open the swelling if it is doughy in character. Syringe out abscess daily with disinfectant, such as lysol, one tablespoonful to a pint of water. Feed bran and chaff, in addition to lucerne.

"T. E. D. F.," Kingscote, reports draught mare, three years, poor condition, which stamps with the near hind foot.

Reply—I advise you to dress both legs with warm lysol solution (4ozs. to a gallon of water). Three dressings at an interval of a week should be effectual. Put her on a special ration.

Hon. Secretary, Green Patch Agricultural Bureau, reports (1) horse with hump on shoulder, and (2) cow with mammitis.

Reply—(1) Apply some red blister to the swelling. Rub it in well for 5mins. Tie his head up short for an hour after the application, so that he cannot reach it with his mouth. The blister should induce abscess formation, and as soon as pus can be detected in the swelling it should be evacuated with a clean, sharp knife. Make the opening in the lower part of the swelling, so as to provide for drainage. If the first application is not effective, apply a second in about a fortnight. (2) Cow with a blind teat subsequent to an attack of mammitis. Milk from this cow is quite fit for use.

Hon. Secretary, Agricultural Bureau, Morphett Vale, reports sheep with swollen throats. *Post-mortem* showed the liver to be a moving mass of parasites.

Reply—The parasites are probably the liver fluke, a flat, leaf-like form which occurs in the bile ducts of the liver. It would be advisable to put the sheep on dry pasture. Low-lying country, especially that liable to flooding, is favorable to the reproduction of fluke. Badly affected sheep should be destroyed. Supply salt licks. Drainage of affected pastures and dressing the land with lime are important preventive measures and destroy the snail which is necessary for the propagation of the fluke. Swampy places and waterholes should be fenced off, and water from some uncontaminated source should be supplied in troughs. Swelling of the throat is common to all debilitating diseases, such as fluke.

Hon. Secretary, Hartley Agricultural Bureau, Bletchley, asks is the disease known as glanders known to exist amongst horses in Australia.

Reply—This disease does not exist in Australia.

"P. S.," Mount Barker Springs, asks (1) manner in which strangles spreads amongst horses; (2) length of incubation period; (3) method of treatment in early stages.

Reply—(1) It is spread by direct or indirect exposure to the nasal discharge or pus from the strangle abscess. The disease may therefore be conveyed by contact with affected horses or by means of food, water, stable utensils, bedding, or by the attendant on his hands or clothes. (2) Three to eight days. The infective material will retain its vitality for several weeks. (3) Isolate affected horses. Give easily digested and nourishing food. Evacuate the abscess as soon as it "points," and dress with antiseptic lotions. Inhalations of steam medicated with eucalyptus or friar's balsam are useful. Drenches should not be given, and if swallowing is difficult, the following electuary may be used:—Extract of belladonna, ½oz.; camphor, 1oz.; chlorate of potash, 1oz.; honey, 4ozs.; glycerine, 4ozs. (mix). One tablespoonful on tongue three times a day. Mild cases require only suitable diet, saline medicine, such as Epsom salts 1oz., chlorate of potash 1 dram, daily in mash or drinking water, and surgical treatment of the abscess.

"J. R. P.," Sandalwood, asks (1) feeding value of liquid molasses, and what quantity should be fed with cocky chaff and oats; (2) mare with hip down, will this affect foaling; (3) mare when drinking stamps feet, kicks belly, and attempts to lie down; (4) horses passing long white worms 2in. to 6in. in length; (5) pigs with scaly legs.

Replies—(1) The principal use of molasses is to add to the palatability of other fodder. For this purpose 1lb. is mixed with a gallon of warm water, and the solution is mixed with the feed. It has a medicinal value as a laxative and a food value as a carbo-hydrate. It may be used up to 2lbs. or 3lbs. daily for adult horses. (2) If the injury refers to the point of the hip, it will not prejudicially affect her foaling. (3) The stamping of the feet and kicking at belly, and attempts to lie down, indicate abdominal pain. Water her before each feed. Do not allow her to drink a large quantity at a time. Feed her carefully, putting her on a definite ration. (4) These are the common round worm of the horse. Give the following powders in the feed:—Tartar emetic, 2ozs.; powdered sulphate iron, 4ozs.; gentian, 6ozs. (mix). Give one tablespoonful twice daily in the feed for a week. (5) Pigs with scaly legs. Provide a clean, dry lairage. Apply sulphur ointment, made by mixing one part of sulphur with four of vaseline. Rub in well to parts affected.

Hon. Secretary, Agricultural Bureau, Maltee, reports death of cows. Symptoms, cows suddenly taken ill, lie down and unable to rise, dry nose, mouth partially closed, unable to eat after first day of illness. *Post-mortem*, first stomach quite healthy, bible quite moist, third stomach contained piece of bone and several pieces of lead; lungs congested and dark in color; bronchial tubes contained frothy substance.

Reply—Both the symptoms and appearances at *post-mortem* point to toxemia as the cause of death. This disease is due to a powerful poison elaborated by a certain germ, and in cattle is usually contracted during the habit of chewing bones, especially those having fragments of decaying animal matter attached. The piece of bone in one of the stomachs indicates that the animal described was a bone chewer. You are aware of the frequency with which fragments of metal, nails, &c., are found in the first and second stomachs of cows. The small piece of metal was

probably picked up accidentally. Curative treatment of affected animals is not satisfactory. It is recommended that the bodies of all animals be destroyed by burning or burial. Milking cows must be provided with a suitable ration, and all cattle should have the natural feed supplemented by hand feed when necessary. Bonemeal and salt should be provided. This will usually prevent the habit of chewing bones. Milking cows can receive it in the feed at the rate of 1oz. of each night and morning. Other cattle can be provided with licks containing the materials in equal quantities. Salt and bonemeal should be used more particularly during the time when there is no green feed.

### CONTROLLING DRIFTING SAND.

The control of "drifting" sand is rather difficult in any place which does not receive a fairly heavy rainfall, but in most cases it can be done economically, providing the drift has not reached the stage of leaving a deep "blow-out" or "crater." The reclamation of drifting sand by the growth of lupins is a comparatively slow process, and only practicable where the reclaimed land will be very valuable; and as the work is done by the bulky organic matter which is returned to the soil, the climatic conditions must be such that lupins will make luxuriant, bulky growth, which in this country means an average annual rainfall of at least 20in. Following these general observations on the control of drifting sand patches, the Superintendent of Experimental Work (Mr. W. J. Spafford) advised an inquirer, engaged in farming on the Murray Flats, that in his particular district the most reasonable way to control a sanddrift would be to grow lucerne as a grazing crop. By that means the sand would be safely held, and good returns secured from sheep, if the following briefly stated directions were carried out:—

1. Make the area to be controlled rabbit-proof with a netting ring-fence.
2. After an autumn rain in April lightly cultivate the sand. Harrows will sometimes do this, at other times a spring-time cultivator may be necessary.
3. Immediately after this cultivation, whilst the land is still moist enough to germinate the seed, broadcast lucerne seed at the rate of about 10lbs. seed per acre.
4. Drill in at least 1cwt. superphosphate per acre straight after broadcasting the seed.
5. Never turn livestock to graze on this lucerne unless there is a good mass of growth.
6. Always remove livestock before the lucerne crop has been fed down very low.
7. Each autumn, after the first rain, drill in about 1cwt. superphosphate per acre.
8. In about six to eight years this land could be cropped with cereals for a couple of years, then be reseeded to lucerne.

Handled in this way you should get from three to six feedings from the lucerne each year, but to keep the sand in check, rabbits must be kept off the block, and the lucerne must not be fed down too low.

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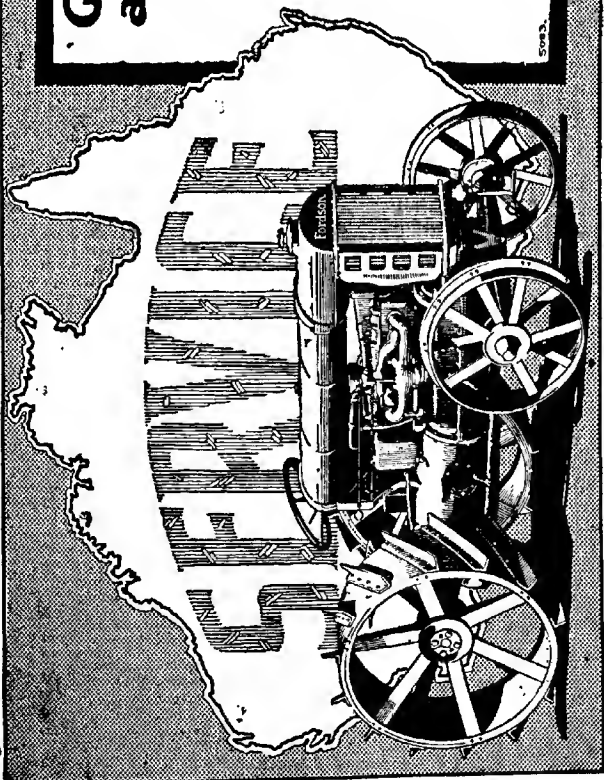
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## DEPARTMENTAL DOINGS.

### AGRICULTURE.

During the past month the Director of Agriculture (Professor Arthur J. Perkins) attended an Agricultural Conference in Melbourne in connection with the British Empire Exhibition. The Director also visited the Minnipa Experimental Farm.

The Field Officer (Mr. S. B. Opie) inspected the Smoky Bay and Butler Experimental Plots. Messrs. W. A. Gordon, of Paris Creek, and P. C. Head, of Woodside, were visited in connection with the cultivation of tobacco. Advice on general farm matters was also given to Mr. T. S. Quint, of Woodside.

### POULTRY.

The Government Poultry Expert (Mr. D. F. Laurie) visited and addressed the members of the Virginia Agricultural Bureau.

### HORTICULTURE.

The Horticultural Instructor (Mr. Geo. Quinn), during the month of June, visited a vineyard at Northfield for the purpose of determining the nomenclature of several varieties of vines. On the 4th of June, Mr. Quinn visited the Berri Irrigation Area and gave a pruning demonstration and address to the members of the Winkie Branch of the Agricultural Bureau. The Berri Branch was also addressed on the subject, "Bud Selection." A pruning demonstration was given before the members of the Lone Gum and Monash Branch, and Mr. Quinn also took the opportunity of inspecting the cotton growing on the plots at Barmera. The Pruning Competitions at Berri and Moorook were also attended by this officer, who also commenced the usual Winter course of horticultural lectures and demonstrations at the School of Mines.

Mr. C. H. Beaumont gave pruning demonstrations at Long Flat and Murray Bridge, and lectured before the Murray Bridge Branch of the Agricultural Bureau.

### DAIRYING.

The Assistant Dairy Expert (Mr. H. J. Apps) visited dairymen in the Strathalbyn, Murray Bridge, Port Elliot, and Woodside districts.

### GENERAL.

Mr. H. Wicks (Member of the Advisory Board of Agriculture) attended the monthly meeting of the Blackwood Branch and delivered an address.

The Secretary of the Advisory Board of Agriculture (Mr. H. J. Finnis) attended the first State Conference of the Agricultural Bureau of New South Wales, which was held at Hawkesbury Agricultural College, and delivered an address on the work of the Agricultural Bureau of South Australia.

## KYBYBOLITE EXPERIMENTAL FARM.

## HARVEST REPORT, 1922-1923.

[By L. J. Cook, Manager.]

(Continued from page 963.)

## WHEAT CROPS.

Ridge-ploughed Field No. 20c was sown to wheat this year. The field was limed at the rate of 1 ton per acre in 1921, and sown to cow peas, which were fed off. The land was ploughed back during May, and towards the end of that month was drilled with the three wheats, White Essex, Leak's Rustproof, and Queen Fan, at the rate of 65lbs. seed and lewt. super per acre. These wheats made very good growth, reaching quite 5ft. in height on the ridges, and headed well. The wetter patches and furrows reduced the average yield somewhat, but an average of 21bush. secured from one of the wettest fields on the farm is highly satisfactory.

Field No. 9c, in six-course rotation, had been grazed for two years. It was ploughed in April, and limed at the rate of 1 ton per acre. On May 20th it was cultivated, and sown with 60lbs. Federation seed and lewt. super per acre. The return of 21bush. was most pleasing. Field No. 17 was fallowed during October, 1921, cultivated in March and April, and again in early June immediately in front of the drill. Our principal varieties under trial were sown in this field. The growth was very irregular, and sorrel was thick in places. The following table shows, in order of productiveness, the yields of varieties in respective fields:—

## Wheat Variety Yields, Kybybolite, 1922.

Variety.	Field	Area.	Total Yield.		Yield per Acre.	
			B.	L.	B.	L.
	Grown.	Acres.				
Queen Fan . . . . .	No. 20c	9.85	244	1	24	46
Federation . . . . .	No. 9c	1.94	40	43	20	59
Leak's Rustproof . . .	No. 20c	3.48	64	14	18	27
White Essex . . . . .	No. 20c	11.65	212	42	18	15
Caliph . . . . .	No. 17	2.60	32	4	12	20
Federation . . . . .	No. 17	5.62	64	36	11	30
Leak's Rustproof . . .	No. 17	6.93	73	1	10	32
White Essex . . . . .	No. 17	5.44	49	45	9	9
Crossbred No. 53 Early	No. 17	3.15	27	13	8	38
Queen Fan . . . . .	No. 17	4.09	34	13	8	22
White Tuscan . . . . .	No. 17	1.21	7	45	6	24
Huron . . . . .	No. 17	0.21	0	51	4	3
Yandilla King . . . .	No. 17	5.38	21	12	3	56
Prelude . . . . .	No. 17	0.18	0	18	1	40
Total . . . . .		61.73	872	38	—	—
Farm average. . . . .		—	—	—	14	8

The next table shows the yields of wheat received from the three fields:—

*Wheat Yields, Kybybolite, 1922.*

Field Grown.	Area. Acres.	Field Treatment, 1921.	Total Yield.		Yield per Acre.	
			B.	L.	B.	L.
No. 9c ..	1.94	Rye grass grazing and limed early 1922	40	43	20	59
No. 20c ..	24.98	Cow peas grazed and limed 1921	520	57	20	51
No. 17 ..	34.81	Bare fallow, but not limed	310	58	8	56
Totals ..	61.73		872	38		
Farm average ..					14	5

The following table gives the yields of the four main varieties grown at the farm each year since 1912:—

*Yields of Wheat Varieties, Kybybolite, 1912-1922.*

Variety.	Means, 1912- 1918.		1919.	1920.	1921.	1922.	Means, 1912- 1922.
	B. L.	B. L.					B. L.
White Tuscan. . .	19 8	15 2	22 55	12 45	6 24	17 12	
Queen Fan . . .	17 0	27 15	10 25	13 46	19 58	16 19	
Federation . . .	17 57	8 47	8 2	10 43	13 56	15 12	
Vandilla King . .	16 48	7 51	8 14	10 47	3 56	13 29	
Farm average .	15 54	15 13	11 4	12 22	14 8	14 55	

The general average yield of 14bush. 8lbs. is not as high as we would like, but until all grain fields have been limed we cannot expect a high average yield. The following table shows the wheat returns since 1910:—

*Wheat Returns, Kybybolite, 1910-1922.*

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.		Yield per Acre.	
	In.	In.		B.	L.	B.	L.
1910 . . . . .	28.35	21.08	15.00	79	43	5	19
1911 . . . . .	22.21	14.72	17.15	232	45	13	34
1912 . . . . .	20.83	18.23	81.91	1,876	35	22	54
1913 . . . . .	18.44	13.93	48.20	1,288	56	26	44
1914 . . . . .	11.94	8.43	22.17	238	32	10	46
1915 . . . . .	23.30	21.18	79.64	882	31	11	5
1916 . . . . .	23.53	20.19	98.75	1,875	19	18	59
1917 . . . . .	26.69	21.90	70.46	231	29	3	17
1918 . . . . .	18.32	16.44	58.52	1,027	40	17	34
1919 . . . . .	15.60	11.43	78.26	1,190	50	15	13
1920 . . . . .	20.87	19.20	73.37	812	8	11	4
1921 . . . . .	22.49	18.53	125.24	1,548	54	12	22
1922 . . . . .	20.69	17.11	61.73	872	38	14	8
Means . . .	21.02	17.11	—	—	—	14	5

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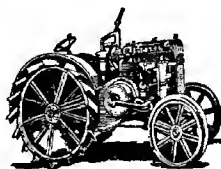
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## PEA CROPS.

Peas were sown in three fields in various rotations. Field No. 6b carried a barley crop during 1921. It was ploughed early in May, and dressed with 30cwts. lime per acre; cultivated in the middle of June, and sown with Early Dun peas at rate of 100lbs. seed and 1cwt. super per acre. The crop germinated well, made good growth, and podded well, yielding 19½ bush. per acre. Field No. 4A carried a heavy crop of oats in 1921, was ploughed during the middle of July, limed at the rate of 1 ton per acre, and sown similarly to 6b. Heavy rains fell immediately after seeding, and a poor germination resulted, otherwise the crop grew well. However, it was thin and patchy, and stock were allowed to graze the crop during November and December. Field No. 16a consists of somewhat poorer soil, which is in need of additional drainage. In this field the manurial tests with the wheaten hay—peas rotation have been conducted. During 1921 the field was under wheaten hay. This season it was sown to peas, dressed with manures as set out under the heading, "Raw Rock Phosphate Tests.—Wheaten Hay—Peas Rotation." This field was not ploughed until the end of June. It was almost immediately worked down, and sown with 100lbs. Early Dun peas per acre. Very fair growth was made.

The following table shows the yields received from each field:—

*Pea Yields, Kybybolite, 1922.*

Variety.	Field Grown.	Area. Acres.	Total Yield.		Yield per Acre.	
			B.	L.	B.	L.
Early Dun . . . . .	No. 6b	8.77	170	27	19	26
Early Dun (expl.) ..	No. 16a	10.00	91	30	9	9
Total .. . . .		18.77	261	57	—	—
Farm average. . .		—	—	—	13	57

The general returns of peas this year are more gratifying, and should encourage perseverance with this crop, which provides valuable food for stock, and is also a good soil enricher.

*Field Pea Returns, Kybybolite, 1916-1922.*

Year.	Total "Useful"		Area. Acres.	Total Yield.		Yield per Acre.	
	Rainfall. In.	Rainfall. In.		B.	L.	B.	L.
1916 . . . . .	23.53	20.19	32.64	498	34	14	49
1917 . . . . .	26.69	21.90	Failure.	Failure.	Failure.	Failure.	Failure.
1918 . . . . .	18.32	16.44	27.54	21	20	0	46
1919 . . . . .	15.60	11.43	42.68	80	41	1	53
1920 . . . . .	20.87	19.20	4.05	6	11	1	32
1921 . . . . .	22.49	18.53	24.22	189	55	7	50
1922 . . . . .	20.69	17.11	18.77	261	57	13	57
Means . . .	21.17	17.83	—	—	—	5	50

The following table summarises generally the returns of the chief crops harvested for 1922, showing the average yield per acre, their values at current rates, and also as stock food, compared with hay at £3 per ton, based on tables prepared by the Director of Agriculture (Professor Arthur J. Perkins):—

*Value of Crops Harvested, Kybybolite, 1922.*

Type of Crop.	Yield per Acre.			Current Market Prices, Per Ton.	Value at Current Market Rates.			Value as Stock Food, Per Ton.	Value per Acre as Stock Food.		
	T.	C.	L.		£	s.	d.		£	s.	d.
Ensilage . . . . .	5	2	96	15 0	3	17	2	19 5	4	19	10
Hay . . . . .	1	13	51	60 0	5	0	4	60 0	5	0	4
		B.	L.	Per Bush.				Per Bush.			
Peas (grain) . . . .		13	57	7 6	5	4	7	3 7	2	10	0
Wheat (grain) . . .		14	8	5 0	3	10	8	3 10	2	14	2
Barley (grain) . . .		18	13	3 0	2	14	9	2 7	2	7	2
Oats (grain) . . . .		18	26	2 6	2	6	8	2 1	1	18	10
Rye (grain) . . . . .		6	28	3 0	0	19	5	3 9	1	4	4

EXPERIMENTS WITH RAW ROCK PHOSPHATES.

Experiments to test the agricultural value of raw rock phosphates were commenced at Kybybolite in 1919, the rocks being low grade, and containing respectively (a) calcium phosphate, and (b) aluminium phosphate equivalent to about 18 per cent. of phosphoric acid.

*Raw Rock Phosphates on Crops to be Harvested.*—To test the rock phosphates on crops to be harvested, a rotation consisting of wheat (for hay)—peas, in which both the wheat and pea crops are dressed with the same fertilisers, was laid down. The results secured from these plots during the past four seasons are shown in the following tables. It is noticeable that plot 2, which is treated with lime and superphosphate, is increasing its advantage over the others in producing wheaten hay, and it has also this year gained considerably in the yield of peas. This plot of hay stood out well above the others all through the season, as also did the plot of peas, the stubble of which produced a growth of wireweed during January and February very much greater than that on other plot stubbles. The results so far secured tend to show that the local aluminium rock is slightly superior to the local calcium rock for this soil.

*Raw Rock Phosphates Tests on Wheaten Hay—Peas Rotation.*

## Wheaten Hay Yields, 1919-1922.

Plot.	Manuring per Acre.	1919.			1920.			1921.			1922.			Means. 1919-1922.		
		T.	C.	L.	T.	C.	L.	T.	C.	L.	T.	C.	L.	T.	C.	L.
1. No manure . . . . .		0	10	84	0	9	0	0	18	84	0	7	21	0	11	47
2. 5wts. lime, lewt. super-phosphate . . . . .		1	6	105	0	17	35	0	18	28	2	4	0	1	6	76
3. lewt. superphosphate . . . . .		1	7	28	0	13	0	0	17	84	1	12	70	1	2	73
4. lewt. aluminium phosphate rock . . . . .		1	6	91	0	12	91	0	14	91	1	6	80	1	4	32
5. lewt. calcium phosphate rock . . . . .		1	3	7	0	11	0	0	12	21	1	1	60	0	16	19

## Peas Yields, 1919-1922.

Plot.	Manuring per Acre.	1919.		1920.		1921.		1922.		Means. 1919-22.	
		B.	L.	B.	L.	B.	L.	B.	L.	B.	L.
1. No manure . . . . .		0	30			2	54	5	54	2	19
2. 5wts. lime, lewt. superphosphate . . . . .		1	17			5	26	15	29	5	33
3. lewt. superphosphate . . . . .		1	4			7	4	10	45	4	43
4. lewt. aluminium phosphate rock . . . . .		1	30			7	10	7	51	4	8
5. lewt. calcium phosphate rock . . . . .		0	39			5	45	5	45	3	2
Total failure											

In the above-mentioned plots, Queen Fan wheat at the rate of 80lbs. per acre was sown on May 13th, and Early Dun field peas at the rate of 100lbs. per acre on June 22nd.

*Raw Rock Phosphates on Natural Pasture.*—The same two rock phosphates are being tested on natural pasture, on plots  $3\frac{1}{2}$  acres in area, and the following table shows the manure applied, the year in which each plot was top-dressed, together with the feed produced, estimated in terms of sheep per acre per annum, for the years 1921 and 1922.

*Returns of Natural Grazing Test, Kybybolite, 1921-1922.*

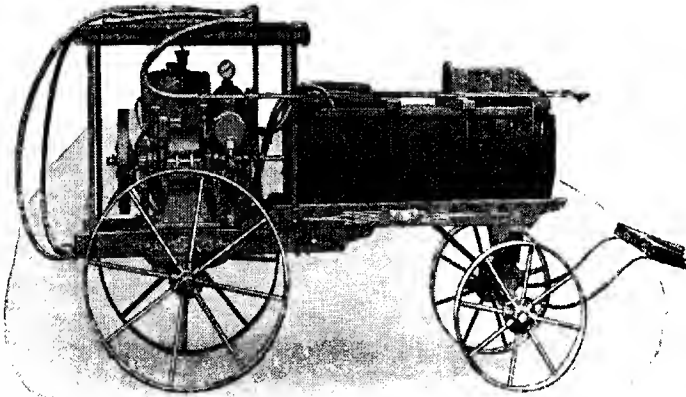
Plot.	Manure applied per Acre.				Grazing. Sheep per Acre.	
	1919.	1920.	1921.	1922.	1921.	1922.
1. 1 ton aluminium phosphate	Nil		Nil	Nil	1.52	1.47
2. 11wts. aluminium phosphate	lewt. alum. phos.		lewt. alum. phos.	lewt. alum. phos.	1.64	1.41
3. 1 ton lime and lewt. super	lewt. super		lewt. super	lewt. super	1.84	2.06
4. 11wts. calcium phosphate	lewt. calc. phos.		lewt. calc. phos.	lewt. calc. phos.	1.48	1.20
5. 1 ton calcium phosphate	Nil		Nil	Nil	1.33	1.27
6. No manure	Nil		Nil	Nil	1.11	0.83

This year the plots were grazed simultaneously and continuously with small flocks of sheep from August till October, and they were grazed again during December with flocks of various sizes. Plot 3

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during the whole year stood out in contrast to the others, produced earlier feed, and a thick growth of it. The natural clover was plentiful on the plot.

#### ROTATION OF CROPS EXPERIMENTS.

*Rotation A.*—Since 1918 a five-course rotation has been under test in 30-acre fields, carrying crops in the following order:—Kale, kale, oats, peas (or other legume), wheat. The following table gives the results available:—

##### *Five-course Rotation of Crops, Kybybolite, 1918-1922.*

Year.	Oats.		Peas.		Wheat.						Kale. Sheep per Acre.
					Hay.			Grain.			
	B.	L.	B.	L.	T.	C.	L.	B.	L.		
1918 . . . .	(20A)	15 25	(20E)	0 46	(20D)	1	8 15		17 4	—	
1919 . . . .	(20B)	36 32	(20A)	2 7	(20E)	2	9 31		31 4	—	
1920 . . . .	(20C)	14 14	(20B)	not sown	(20A)	—	—		11 9	—	
1921 . . . .	(20D)	destroyed	(20C)	fed off	(20B)	—	—		17 42	—	
1922 . . . .	(20E)	41 9	(20D)	not sown	(20C)	1	12 35		20 51	2.11	
Means . .		21 24		—		—	—		19 34	—	

*Rotation B.*—A six-course rotation has been carried on in a series of 2-acre plots. The rotation is as follows:—Wheat, oats and vetches, turnips, oats or barley, rye grass and clover, rye grass and clover. Details of the seeding of these plots have already been given amongst the general crop report. The yields of the grain and hay crops and the turnips grown in this rotation are as follows:—

##### *Six-course Rotation of Crops, Kybybolite, 1918-1922.*

Year.	Wheat.		Oats and Vetches.		
	B.	L.	T.	C.	L.
1918 . . . . .	(9A)	8 11	(9B)	0 14	12
1919 . . . . .	(9F)	11 19	(9A)	0 10	56
1920 . . . . .	(9E)	15 24	(9F)	1 15	92
1921 . . . . .	(9D)	12 6	(9E)	1 13	35
1922 . . . . .	(9C)	20 59	(9D)	1 7	93
Means . . . . .		13 36		1 4	35

Turnips.		Oats or Barley.		
Sheep per Acre.		B.	L.	
1918 . . . . .	—	(9D)	9 4	(oats)
1919 . . . . .	—	(9C)	13 17	“
1920 . . . . .	—	(9B)	11 21	“
1921 . . . . .	—	(9A)	6 22	“
1922 . . . . .	(9F) 5.85	(9F)	21 1	(barley)
Means . . . . .	—		10 6	oats (4 years)
			21 1	barley (1 year)

*Rotation C.*—The Norfolk four-course rotation—turnips, oats, peas, and wheat—has been tested in 4-acre fields of crops. The returns of wheat and oats have been very satisfactory to date from this rotation. These four fields include some of our best soil, and it is disappointing that the pea crops have not been better. The following table shows the returns for past four seasons:—

*Four-course Rotation of Crops, Kybybolite, 1919-1922.*

Year.	Peas.	Wheat.		Turnips,		Oats.	
		Grain.	Hay.	Sheep	per Acre.	B. L.	
		B. L.	T. C. L.				
1919 ..	(4d) 2 31	(4A) 29 26	—	—	—	(4c) 17 4	
1920 ..	(4c) 1 32	(4D) 29 50	—	—	—	(4B) 32 27	
1921 ..	(4B) 3 14	(4C) 8 40	1 13 92	(4D) 1 74	(4A) destroyed		
1922 ..	(4A) Fed off	(4B) —	1 17 10	(4C) 2 63	(4D) 30 0		
Means	* 2 26	* 22 39	† 1 15 51	† 2 18		19 38	

\* Three years only.

† Two years only.

*Rotation D.*—A six-course rotation—peas, wheat, turnips, oats (hay), clover, barley—has been under test in 9-acre fields. This series was commenced in 1920, and returns to date are as follows:—

*Six-course Rotation of Crops, Kybybolite, 1920-1922.*

Year.	Peas.	Wheat.		Turnips.	
	B. L.	B. L.	Sheep per Acre.		
1920 . . . . .	(6F) Failure	(6A) 17 59	—	—	—
1921 . . . . .	(6E) 13 5	(6F) 18 44	(6A) 1 75		
		T. C. L.			
1922 . . . . .	(6D) 19 26	(6E) 2 11 49	—		
Means . . . . .	10 50	—	—		

		Oaten Hay.		Clover.	Barley.
		T. C. L.	Sheep per Acre.		B. L.
1920 . . . . .	(6C) 1 5 5	—	(6E) 6 18		
1921 . . . . .	(6B) 1 2 32	(6C) 1 98	(6D) 5 7		
1922 . . . . .	(6A) 1 18 39	(6B) 1 39	(6C) 17 22		
Means . . . . .	1 8 63	—	9 32		

TEST OF HIGH-GRADE SUPERPHOSPHATE AT KYBYBOLITE, 1922.

The plot of Leak's Rustproof wheat sown in Field No. 17 was divided at seeding time. One bag of 45 per cent. water soluble superphosphate was drilled with the seed on 1.63 acres, and the balance, 5.30 acres, was sown with 36 per cent. water soluble super at the same rate per acre, viz., 1cwt. There was no noticeable difference in the germination of either plot, and the growth was very similar. At harvest the 1.63 acres sown with the 45 per cent. super yielded 18bush. 39lbs., or 11bush. 27lbs. per acre, and the 5.30 acres sown with ordinary 36 per cent. super yielded 54bush. 22lbs., or 10bush. 15lbs. per acre. This gave a difference of 1bush. 12lbs. in favor of the high-grade super, an increase of 11.7 per cent. on the yield produced by

the ordinary 36 per cent. super. It should be pointed out, however, that from the point of view of phosphate present, 1cwt. of 45 per cent. super corresponds to 140lbs. of 36 per cent. super, *i.e.*, 28lbs. difference, or 25 per cent. From the point of view of cost—5s. 6d. for the 45 per cent. and 4s. 9d. for the 36 per cent.—this represents 9d. for 1bush. 12lbs. of wheat. Had similar results followed the application of 140lbs. of 36 per cent. super, the increase of 1bush. 12lbs. would have cost 1s. 2½d., or 5½d. in favor of the 45 per cent.

#### RESULTS OF LIMING AT KYBYBOLITE.

The following table shows the average returns for various crops received this season from all fields that have been limed during the last six years, in comparison with those received from all fields that have never been limed:—

*Returns from Crops on Limed and Unlimed Areas, Kybybolite, 1922.*

Variety of Crop.	Acres.	Limed.			Acres.	Unlimed.		
		Yield per Acre.				Yield per Acre.		
		T.	C.	L.		T.	C.	L.
Ensilage . . . . .	5.17	6	14	47	6.78	3	18	85
Hay . . . . .	25.89	2	2	41	59.99	1	9	68
			B.	L.			B.	L.
Wheat . . . . .	26.92		20	52	34.81		8	56
Oats . . . . .	32.75		39	32	53.65		5	30
Barley . . . . .	1.94		22	1	8.84		17	22
Peas . . . . .	10.77		18	42	8.00		7	34

#### IRRIGATION EXPERIMENTS.

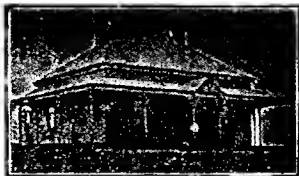
Maize and sorghum varieties have been grown for grain under irrigation. These have not yet been harvested. They will be dealt with in a special report.

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## FRUIT TREE AND GRAPE VINE PRUNING.

### RESULTS OF COMPETITIONS CARRIED OUT ON THE RIVER MURRAY SETTLEMENTS.

For the third successive year a series of Fruit Tree and Grape Vine Pruning Competitions has been carried out on the River Murray irrigation settlements. The competitions were held at the following centres on the dates mentioned:—Cadell, June 19th; Waikerie, June 20th; Moorook, June 21st; Renmark, June 26th; Berri, June 27th.

In each case the local Branch of the Agricultural Bureau was responsible for local arrangements. Championship Competitions were held at Moorook on June 28th. Arrangements for these were in the hands of a committee consisting of one representative from each of the Branches interested, with Mr. W. R. Lewis (Berri) and Mr. S. Sanders, jun. (Moorook), acting in the capacity of Hon. Secretary and Assistant Hon. Secretary respectively. Mr. C. G. Savage (Deputy Horticultural Instructor) acted as judge throughout the Competitions. Mr. Savage had the assistance of one or more consultative judges appointed by the local Branches of the Bureau.

Each competitor who received 80 per cent. or over of points in each section qualified for a certificate of competency. The names of those who were awarded certificates are set out in the general report below.

#### CADELL (June 19th, 1923).

At this centre about 60 settlers were present at the Competitions. Results were as follows:—

*Tree Section* (6 Competitors).—Apricot—L. W. Sholl, 81 per cent. Peach—M. Gordon, 80 per cent. Pear—Nil.

*Vine Section* (10 Competitors).—Gordo—Nil. Currant—W. S. Mudge, 84 per cent.; S. Davis, 81 per cent.; D. Hall, 80 per cent. Sultana—W. S. Mudge, 81 per cent.; G. Priest, 80 per cent.

The judge was assisted by Messrs. H. Lehmann (Waikerie) and A. Pickering (New Era).

#### WAIKERIE (June 20th, 1923).

The approximate attendance at this gathering was 120 settlers. The awards were:—

*Tree Section* (12 Competitors).—Apricot—C. P. Smith, 88 per cent.; J. Boehme, 80 per cent.; T. Taylor, 80 per cent. Peaches—E. Miller, 82 per cent. Pears—C. P. Smith, 72 per cent.

*Vine Section* (23 Competitors).—Gordo—W. Perry, 93 per cent.; F. Dunstone, 92 per cent.; P. McDonald, 81 per cent.; A. Perry, 80 per cent. Currant—J. Virgo, 91 per cent.; J. Carpenter, 81 per cent.; G. Perry, 80 per cent.; E. Miller, 80 per cent.; A. Perry, 80 per cent.; F. Dunstone, 80 per cent. Sultana—E. Miller, 91 per cent.; E. Crable, 84 per cent.; C. Smith, 85 per cent.; J. Boehme, 80 per cent.

The judge was assisted by Messrs. H. Lehmann (Waikerie) and A. Pickering (New Era).



**MOOROOK (June 21st, 1923).**

Attendance about 100.

*Tree Section* (9 Competitors).—Apricot—S. Sanders, jun., 89 per cent.; M. Girant, 81 per cent.; M. Wachtel, 80 per cent. Peach—M. Wachtel, 80 per cent.; S. Sanders, jun., 82 per cent. Pear—S. Sanders, jun., 82 per cent.

*Vine Section* (9 Competitors).—Gordo—S. Sanders, jun., 88 per cent.; L. A. King, 83 per cent.; C. Vardon, 81 per cent. Currant—L. A. King, 89 per cent.; C. Vardon, 83 per cent.; S. Sanders, jun., 84 per cent.; C. S. Bailey, 80 per cent. Sultana—L. A. King, 89 per cent.; C. S. Bailey, 83 per cent.; S. Sanders, jun., 81 per cent.; J. Wetherall, 80 per cent.

The judge was assisted by Mr. W. R. Lewis, of Berri.

**REMARK (June 26th, 1923).**

Attendance about 50.

*Tree Section* (3 Competitors).—No certificates awarded.

*Vine Section* (6 Competitors).—Gordo—R. H. Westcombe, 80 per cent.; F. Hooper, 81 per cent.; H. J. Ruediger, 80 per cent. Currant—P. A. Johns, 89 per cent.; F. Hooper, 83 per cent.; A. F. C. Strachan, 80 per cent. Sultanas—R. H. Westcombe, 87 per cent.; P. A. Johns, 82.5 per cent.; L. A. Darrington, 82 per cent.; A. F. C. Strachan, 80 per cent.; F. Hooper, 80 per cent.

The judge was assisted by Messrs. C. Katekar and F. Basey (Remark).

**BERRI (June 27th, 1923).**

Attendance about 120.

*Tree Section* (8 Competitors).—Apricot—L. A. Chapple, 88 per cent.; R. H. Halliday, 85.5 per cent.; W. H. Harris, 83 per cent.; A. W. Magarey, 81 per cent.; H. W. von Bertouch, 81 per cent. Peach—H. W. von Bertouch, 92 per cent.; W. H. Harris, 87 per cent.; R. H. Halliday, 83 per cent.; L. A. Chapple, 80 per cent.; L. C. Pennyfield, 82 per cent. Pear—L. A. Chapple, 85.5 per cent.; A. V. Stidston, 81 per cent.

*Vine Section* (14 Competitors).—Currant—L. A. Chapple, 90 per cent.; W. H. Harris, 84 per cent.; H. W. von Bertouch, 82 per cent.; L. C. Pennyfield, 85.5 per cent.; A. W. Magarey, 82 per cent.; W. N. Ellis, 82 per cent.; H. Brand, 81 per cent.; R. H. Halliday, 80 per cent. Dorodillo—L. A. Chapple, 84 per cent.; W. H. Harris, 83 per cent.; H. W. von Bertouch, 82 per cent.; R. Fluris, 82 per cent.; A. V. Stidston, 80 per cent.; W. N. Ellis, 80 per cent.; L. C. Pennyfield, 80 per cent. Sultana—L. A. Chapple, 92 per cent.; L. C. Pennyfield, 89 per cent.; P. M. Wilksch, 88 per cent.; W. H. Harris, 84 per cent.; R. H. Halliday, 83 per cent.; A. H. Penny, 82 per cent.

The judge was assisted by Mr. W. R. Lewis, of Berri.

**CHAMPIONSHIP COMPETITIONS, MOOROOK (June 28th, 1923).**

Attendance about 120 settlers.

*Vine Section* (total points, 300).—Gordo, Currant, and Sultana Classes.—C. P. Smith (Waikerie), 267 points; L. A. Chapple (Berri), 262; E. Miller (Waikerie), 257; L. A. King (Moorook), 254; W. H.

Harris (Berri), 249; S. Sanders, jun. (Moorook), 246; F. Dunstone (Waikerie), 244; C. Vardon (Moorook), 242; P. Johns (Renmark), 240; L. C. Pennyfield (Berri), 234; R. H. Westcombe (Renmark), 225; F. Hooper (Renmark), 224; C. S. Bailey (Moorook), 217.

*Tree Section* (total points, 300).—Apricot, Peach, and Pear Tree.—E. Miller (Waikerie), 255 points; L. A. Chapple (Berri), 253; C. Smith (Waikerie), 250; H. W. von Bertouch (Berri), 245; S. Sanders, jun. (Moorook), 244; T. Taylor (Waikerie), 240; W. H. Harris (Berri), 236; \*M. Wachtel (Moorook), 152.

\* Competed in apricot and peach classes only.

The judge was assisted by Messrs. W. R. Lewis (Berri) and H. Lehmann (Waikerie).

Two silver cups, known as the "Sulphate of Ammonia Cups," were presented by the South Australian Gas Company for competition. The cup for vine pruning went to Mr. C. P. Smith (Waikerie), and that for fruit tree pruning to Mr. E. Miller (Waikerie). Mr. L. A. Chapple, of Berri, was runner-up in both sections.

## ORCHARD NOTES FOR SOUTHERN DISTRICTS.

[By C. H. BEAUMONT, Instructor and Inspector.]

Pruning is, of course, the principal work to get on with, and I wish to impress on orchardists that they should not overdo it. Bearing trees take very little pruning if we expect them to bear a lot of fruit; younger trees coming into the bearing stage should be allowed plenty of wood, as long as it is well placed. Remember that all big cuts should be well cleaned off with a sharp knife and a coat of thick paint should be put on. Cuttings should be collected at once and placed in heaps ready for the cart or the burner and be burned as soon as possible.

Ploughing will go on as soon as possible, varying the depth from that of last ploughing, so as not to make a hard pan. The use of disc implements will result in much better work and will prevent a lot of washaways.

See that spray pumps are in good order for winter work, and that you have the necessary material on hand. Lime, sulphur, red oil, and sulphuric acid are the most likely to be wanted.

Trays and all materials used in the drying plant should be cleaned and repaired and stacked away.

Fruit in cool stores will need to be examined, and all damaged specimens removed.

## AGRICULTURAL EXPERIMENTS—REPORT FOR THE YEAR 1922-1923.

### EXPERIMENTS AT MILLICENT.

[By W. J. SPAFFORD, Superintendent Experimental Work, and  
E. S. ALCOCK, Field Officer.]

On the departmental block of land at Millicent, 18 acres in extent, a series of experimental tests was inaugurated. At the request of the local Branch of the Agricultural Bureau the main work being done is concerned with an endeavor to discover a variety of barley of the two-rowed type better suited to the Millicent conditions than is the Duckbill now so largely grown. To avoid growing barley continuously on the same ground, and to allow of a barley crop being grown every year, the block of land has been divided into halves. One is sown to a barley crop and the other a hay crop of a mixture of wheat and oats, the cropping being alternated annually.

#### BARLEY VARIETIES.—MILLICENT, 1922.

Last year (1921) five varieties of barley were tested on these plots. These were Archer's Chevalier, Plumage, Binder, and Kinver's Chevalier, the seed of which was obtained in New Zealand, and Duckbill grown from local seed. These same varieties were again grown in 1922, together with four varieties from England (Beaven's Archer, Plumage Archer, Improved Champion Chevalier, and Goldthorpe), and four from France (Princess de Svalof, Albert, French Chevalier, and Winter Square). They were sown on August 3rd and 4th, at the rate of 1 bush. of seed per acre, with 1 cwt. superphosphate. These varieties gave the following returns:—

#### *Yields of Barley Varieties.—Millicent, 1922.*

Variety.	Area. Acres.	Total Yield Bush. lbs.	Yield per Acre. Bush. lbs.
Duckbill . . . . .	0.45	14 20	32 0
Princess de Svalof . . . . .	0.49	11 4	22 31
Albert . . . . .	0.49	10 48	22 18
Archer's Chevalier . . . . .	0.38	8 23	22 13
Beaven's Archer . . . . .	0.49	10 45	22 12
French Chevalier . . . . .	0.39	7 40	20 0
Winter Square . . . . .	0.39	7 10	18 23
Plumage Archer . . . . .	0.51	6 30	12 47
Plumage . . . . .	0.40	4 33	11 32
Improved Champion Chevalier . . . . .	0.49	5 10	10 31
Binder . . . . .	0.49	2 38	5 32
Kinver's Chevalier . . . . .	0.46	2 8	4 35
Goldthorpe . . . . .	0.50	2 0	4 0
Whole block . . . . .	5.93	94 9	15 44



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The yields disclosed above are not a correct criterion of the growth of these barleys, because a number of the recently imported sorts germinated rather badly, and although the resulting crops were thin, the plants "headed-up" really well, but suffered most from the devastating winds of December 29th. Future returns should afford a better basis of comparison, because from now on locally grown seed of these varieties will be used.

The returns secured from the barleys grown on these plots in the past two seasons are set out in the next table:—

*Barley Varieties.—Millicent, 1921-22.*

Variety.	Yield per Acre.		Means, 1921-1922, Bush. lbs.
	1921. Bush. lbs.	1922. Bush. lbs.	
Duckbill . . . . .	29 1	32 0	30 25
Archer's Chevalier . . . . .	30 28	22 13	26 20
Plumage . . . . .	11 46	11 32	11 39
Kinver's Chevalier . . . . .	10 34	4 35	7 34
Binder . . . . .	2 31	5 32	4 6
Princess de Svalof . . . . .	—	22 31	—
Albert . . . . .	—	22 18	—
Beaven's Chevalier . . . . .	—	22 12	—
French Chevalier . . . . .	—	20 0	—
Winter Square . . . . .	—	18 23	—
Plumage Archer . . . . .	—	12 47	—
Improved Champion Chevalier . . . . .	—	10 31	—
Goldthorpe . . . . .	—	4 0	—
Average yield (whole block)	15 29	15 44	15 36
Rainfall . . . . .	28.86in.	30.61in.	29.73in.

Samples of grain from the 1922 crop of all of these varieties were submitted to several maltsters for their opinion of the quality, and the following are statements received:—

AUSTRALIAN MALTSTERS' REPORTS ON BARLEYS  
GROWN AT MILLICENT IN 1922.

BARRETT BROS. PTY. LTD. (South Australia and Victoria).

*Duckbill.*—This is the most valuable barley from a malting point of view.

*Kinver's Chevalier.*—This has no more than a feed value on the sample given, and it does not appear to have qualities of a malting barley in it.

*Archer's Chevalier.*—Shows prospects of developing into a barley suitable for malting, but the sample given would not be of much use on this year's harvest.

*Binder*.—May or may not develop into a malting grade; the sample is not up to malting requirements.

*Plumage*.—Does not appear to have any attraction whatsoever for malting.

*Archer's Plumage*.—This has good malting qualities in it, although the sample given is only just about in the malting class.

*Improved Champion Chevalier*.—An unattractive-looking barley.

*Goldthorpe*.—Has good malting qualities visible in it, although the sample under consideration is hardly up to standard on this harvest.

*Beaven's Archer*.—Has good malting qualities, and the sample shown appears to be quite buyable.

*French Chevalier*.—This offers no attraction.

*Albert*.—Has malting qualities, but the sample sent seems to have suffered very badly from the weather.

*Winter Square*.—Does not show malting qualities.

*Princess de Svalof*.—This we do not like.

“In giving the above opinion, we have judged the barley purely on its merits, not taking into account that the season was against it, and we would suggest that as at present the data available about the habits and growth of the plants are so limited, that it would be advisable further to experiment before allowing outside farmers to get hold of the seed, as a mixture of the ordinary Duckbill and any of these grains would probably be fatal to a good sample, owing to different ripening periods, &c.

“We wish to thank you for the opportunity you have given us of seeing these barleys, in which we are very interested, and think that your enterprise in importing the seed is very commendable indeed.”

MESSRS. TOOTH & Co. (New South Wales).

“Our maltster states that some of the varieties have been closely dressed, and are quite unsuitable for malting owing to their germinating powers being impaired. This fault exists in most of the samples submitted, but overlooking this fault, he is of the opinion that the following lines are most desirable types, and you will be well advised in continuing the trial with them, viz.:—Beaven's Archer, Plumage Archer, Princess de Svalof, Improved Champion Chevalier, Goldthorpe, and Binder.

“He is particularly impressed with the French variety (Princess de Svalof) and the Improved Champion Chevalier, as they are very bold, and would be excellent grain for malting.

"We will be pleased to hear from you later as to your experience with the various types during the growing period and actual results, and also to receive samples of the harvested grain at the end of this season."

TOOHEYS LTD. (New South Wales).

"Our maltster reports that the barley in each case is far too badly skinned to be of any value for malting purposes. If this fault were not in evidence, the samples which would appeal most to him as a maltster would be Goldthorpe, Plumage Archer, and Duckbill. We have secured a fairly large parcel of Duckbill very suitable for malting from Millicent this year, and also a small line of Plumage of excellent quality."

SMITH, MITCHELL & Co. (Victoria).

"We would suggest that you give the whole of these varieties of barleys a further trial, as we would not like to condemn any of them on a one-year trial. The samples are far too small to go into their analytical qualities, also their diastasic powers, and modification qualities, and if you again experiment with these seeds, and can let us have larger quantities, we shall be pleased to go through them thoroughly, and let you know our results. In giving you our opinion of the samples now before us, we would like to point out the fact (of which you are no doubt well aware) that in Australia, as in other parts of the world, the soil and climatic conditions where barley is grown vary, and your chief aim is, no doubt, to get varieties of seed best suited for the conditions of your particular district. Of course, last year climatic conditions, generally speaking, were not favorable to barley growing, and your district (Millicent) suffered to no small degree in this respect.

"Of these samples, our opinion is that the four English varieties (Goldthorpe, Plumage Archer, Beaven's Archer, and Improved Champion Chevalier) are the best, the Goldthorpe being the best of the four, and the other three being about equal. Next to them we would say come three of the French varieties:—1st, Princess de Svalof; 2nd, French Chevalier; and 3rd, Albert.

"The New Zealand varieties (Archer's Chevalier, Kinver's Chevalier, Binder, and Plumage) are all poor, showing a fair amount of irregularity, although we would say the Archers' and Kinvers' would have the best prospects. The Binder and Plumage varieties are at present showing up poorly. The Duckbill sample is well up

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to the best average malting samples of the season from the South-East of South Australia. Of course, there were cases of individual samples being better, but we are now comparing the general average."

#### ENGLISH MALTSTERS' REPORT ON BARLEYS GROWN AT MILLICENT IN 1922.

Messrs. Geo. Wills & Co. very kindly submitted samples from all of the varieties grown in the Millicent plots to merchants and maltsters in England, who have reported on them from the point of view of suitability to requirements of the brewing trade in Great Britain.

##### SUMMARY OF ENGLISH REPORTS.

*Winter Square*.—This would be difficult to sell against other descriptions of brewing barley, and it is considered that the type would only show a low extract of malt, giving a yield lower than Karachis. It would also have to compete with Californian and Chilian brewing barley, and suffer in the competition. The grains are thin, uneven, broken, and badly skinned.

*Kinver's Chevalier*.—Of a quality to be avoided.

*Binder*.—Of a quality to be avoided.

*Plumage*.—Of a quality to be avoided.

*Archer's Chevalier*.—This type is a shade better than the three just mentioned, but would not find many friends.

*French Chevalier*.—This type is again hardly worth growing so far as the English trade is concerned.

*Albert*.—Is a rough type. The skin is fairly thick, but the grain is probably the best threshed sample, and this is no doubt accounted for by the fact that the thick skin has withstood the harsh treatment which the other more delicately skinned barleys cannot resist.

*Princess de Svalof*.—This is quite a fair sample, and would be improved if it was rather more mellow.

*Beaven's Archer*.—Is a very good lot. It has not been so badly damaged in the threshing as some of the other types, and would be quite useful for the bitter beer trade.

*Improved Champion Chevalier*.—Would be suitable for the brewing trade, and is just a shade better than Princess de Svalof.

*Goldthorpe*.—This is a very good lot, and is just a shade mellow in appearance than Beaven's Archer. Harsh treatment during the operation of threshing has spoilt it a little.

*Plumage Archer*.—This is a useful barley, and would compare favorably with Improved Champion Chevalier.

*Duckbill*.—This is a good sample of Duckbill, but this class of barley is not much in favor in England. It is very much like the

flat type of home-grown barley. For people who understand it, it gives quite fair results, but it is not popular in this country, and is only used by very few maltsters, and unless the yield per acre is particularly favorable to the Australian farmers, it will probably not pay to grow this class of grain on a large scale, as it will always sell in the United Kingdom at a discount, when compared with barleys of the Chevalier type. In connection with this sample, one of our friends remarks that it is quite exceptional to obtain this variety so well grown, and that this season's quality is better than that of previous years.

"All of our friends remark on the damage which has been done to the barleys owing to bad threshing. One of our friends points out that the best barley can be ruined and rendered useless for malting by careless threshing, and adds that if the Australian Government are serious in their desire to develop the export of barley for malting purposes, they must, whilst paying attention to the seed used, also take steps to ensure that the grain can be properly threshed, and when sold be in a condition fit for use for the purpose for which it is grown.

"As you are aware, the Australian harvest makes barley late in arriving in the United Kingdom, and a great bulk of the shipments have to be held over here until the autumn malting takes place in this country, and so freedom from weevil on arrival is highly essential."

#### GENERAL.

These reports, so very graciously supplied by maltsters and others interested in the malting barley trade, appear to show clearly that if our production of malting barley is to be increased to the extent of attaining a regular surplus for exportation to Great Britain and other European countries, a knowledge of varieties is essential, and that the sooner we learn to handle the kinds required in the markets of Europe, the sooner will we be in a position to exploit those markets to the best advantage.

#### HAY CROP.—MILLICENT, 1922.

The stubble of the 1921 barley crop was grazed with sheep, then burnt, and the land was ploughed in early May. After receiving two cultivations the hay crop was sown on June 14th by drilling  $1\frac{1}{2}$  bush. of Algerian oats per acre one way, and then cross-drilling this with 1 bush. White Tuscan wheat per acre, the manuring consisting of 1 cwt. superphosphate per acre. Both cereals germinated well and made good, strong, early growth, but at harvest time the oats were much more in evidence than the wheat.

The returns secured from the hay crop at Millicent plots during the past two seasons are arranged below in the next table:—

*Hay Crops.—Millicent, 1921-1922.*

Year.	Yield per Acre.			Rainfall. In.
	T.	C.	L.	
1921 .. .. .	2	11	44	28.86
1922 .. .. .	1	15	26	30.61
Means .. .. .	2	3	35	29.73

Mr. I. Bonshaw did all of the work in connection with the cropping of these plots in a satisfactory manner, and is continuing the operations for this season.

## RIVER MURRAY HERD TESTING ASSOCIATION.

### RESULTS OF BUTTERFAT TESTS FOR MAY, 1923.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during May.	Per Cow during May.	Per Cow October to May.	Per Herd during May.	Per Cow during May.	Per Cow October to May.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1/C	31.35	24.26	21650	690.59	5953.02	884.63	28.22	240.37
1/E	23	21.68	12178.5	529.50	4648.96	586.89	25.52	204.26
1/J	23	21	10493.5	456.24	4178.40	509.31	22.14	189.08
1/L	18.10	13.77	9950	549.72	4528.69	464.95	25.69	207.85
1/M	24.58	22.65	12097.5	492.17	4198.60	668.31	27.19	208.24
1/R	13	9.84	5138	395.23	3902.58	271.51	20.89	195.51
1/T	12	9	5797	483.08	4331.54	309.76	25.81	217.12
1/U	18	16.81	11961	664.50	5185.71	552.35	30.69	222.39
1/W	17.77	16.52	10373	583.73	5032.81	411.96	23.18	189.61
1/X	19.58	16.35	9042.5	461.82	4531.79	398.35	20.34	204.28
1/Y	26.68	21.77	16800.5	629.72	5005.64	687.63	25.77	216.20
1/Z	17	11.81	8020	471.76	4092.05	360.64	21.21	185.72
1/AA	6	6	4200.5	700.08	5174.66	176.57	29.43	224.54
1/BB	5.81	5.81	3890.5	669.62	4025.15	176.12	30.31	175.52
1/CC	15.65	12.10	6634.5	426.65	2490.93	280.85	18.06	105.74
1/V	15.94	15.94	8540.5	535.79	2483.18	384.20	24.10	107.83
Means	17.96	15.33	9797.97	545.54	4746.98	445.25	24.79	208.97

## MT. GAMBIER AND DISTRICT HERD TESTING ASSOCIATION.

## RESULTS OF BUTTERFAT TESTS FOR MAY, 1923.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during May.	Per Cow during May.	Per Cow August to May.	Per Herd during May.	Per Cow during May.	Per Cow August to May.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
2/A	21	7.35	1799	85.67	4619.26	82.50	3.93	198.83
2/B	7	3.71	2237.5	319.64	7738.36	92.60	13.23	323.83
2/C	19	12.16	5308	279.37	5621.79	224.07	11.79	227.57
2/D	13	6	3193	245.62	4294.43	131.86	10.14	172.01
2/E	11	7	2163.5	196.68	5928.22	103.40	9.40	263.28
2/F	20	11.19	5606	280.30	4916.79	240.53	12.03	200.89
2/G	3	2.42	704.5	234.83	7429.33	33.33	11.11	338.98
2/H	26.65	11.84	3064	114.97	4815.62	166.37	6.24	202.13
2/I	13.16	5.23	900	68.39	5141.57	42.93	3.26	212.31
2/J	11.71	8.61	2182.5	186.38	7009.33	118.41	10.11	300.22
2/K	19.90	17.97	7115.5	357.56	5813.53	321.75	16.17	246.09
2/L	31	21.84	5088	164.13	4244.61	238.72	7.70	193.81
2/N	12	4.65	520	43.33	3719.85	24.28	2.02	150.90
2/O	42	22.13	8688	206.86	3668.94	365.47	8.70	151.15
2/Q	33	10.55	3619.5	109.68	4247.93	142.40	4.32	174.95
2/R	16	13.29	6648	415.50	7838.27	335.10	20.94	344.43
Means	18.71	10.37	3677.31	196.50	4973.90	166.48	8.90	209.54

## FRIESIAN BULL FOR SALE

The Department of Agriculture has for Sale the Friesian Bull

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## PRICE, 30 GUINEAS.

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THE DIRECTOR OF AGRICULTURE.

## DEPARTMENT OF AGRICULTURE.

### SALE OF PURE-BRED BULLS.

(Under the provisions of the Dairy Cattle Improvement Act, 1921.)

Arrangements have been made for the first sale of pure-bred bulls to take place at the Adelaide Show Grounds on Thursday, September 13th, 1923. The sale will be divided into two divisions:—

1. Pure-bred bulls which cannot comply with the conditions necessary to qualify for Government subsidy.
2. Pure-bred bulls eligible for Government subsidy.

The sale will be open to South Australian and interstate owners, but subsidies will be paid only to purchasers residing in South Australia.

Prior to the sale, all bulls submitted under the Government subsidy division must be examined by Government veterinary officers. This can be arranged if the bulls arrive at the Show Grounds on the Monday of Show week.

Owners who wish to take advantage of the sale should notify the Director of Agriculture on or before August 13th, 1923, giving the number and names of the bulls which it is proposed to offer.

Application, declaration, and certificate forms, as well as full information concerning the proposed sale may be obtained on application at the Department of Agriculture, Victoria Square, Adelaide.

#### I. CONDITIONS GOVERNING SALE OF PURE-BRED BULLS.

- A. The bulls shall be registered in Herd Books or be eligible for Herd Book entry.
- B. Bulls must be well grown and true to type.
- C. Bulls shall be not less than 10 months and not more than 5 years old.
- D. Owners of bulls 2 years old and over must produce evidence of fruitfulness in the preceding year.

#### II. CONDITIONS GOVERNING SALE OF PURE-BRED BULLS ELIGIBLE FOR GOVERNMENT SUBSIDY.

- A. Bulls must comply with all conditions laid down in Section I.
- B. Bulls eligible for Government subsidy shall be the progeny of officially tested stock reaching the undermentioned butterfat standards during 273 days' milking:—

Heifers (first calf) . . . . .	200lbs. butterfat
3 years and under 4 years (second calf) . . . . .	275lbs. butterfat
4 years and over . . . . .	325lbs. butterfat

- (a) In the case of a dam not reaching the standard set for her age, her progeny will be no longer eligible for sale under Government subsidy.
- (b) Any cow or heifer reaching the 325lb. butterfat standard need not be tested for more than one year.

- c. Bulls for sale cannot qualify for subsidy unless having passed a tuberculin test within six months prior to date of sale.
- cc. Vendors of bulls shall produce concerning such bulls:—
  - (a) A declaration of health on a form to be supplied by the Department of Agriculture.
  - (b) A health certificate by a Government veterinary officer.
  - (c) A tuberculin certificate by a Government veterinary officer as provided in clause "c."
- d. Subject to the following conditions, the Government shall offer to approved purchasers of such bulls a bonus of 25 per cent. of the purchase price at the end of six (6) months after purchase, or at such later date as owners can prove that bulls have qualified by service, provided that such bonus shall not exceed £25. A further bonus of 25 per cent. of the purchase price shall be paid at the end of eighteen (18) months after purchase, provided that such further bonus shall not exceed £25. No purchaser shall receive by way of bonuses more than 50 per cent. of the purchase price of any bull, nor total bonuses in excess of £50 per bull.
- dd. The purchaser shall submit to the Director of Agriculture immediately prior to the due date of payment of each portion of the Government subsidy—
  - (a) A declaration of health on a form procurable at the Department of Agriculture.
  - (b) A health certificate by a Government veterinary officer.
  - (c) Signed statements of service from the owners of at least 10 of the cows served, in accordance with clause "f."
- e. The application for bonus to be made on forms supplied at the sale and endorsed by the auctioneer and Government representative.
- f. Subsidised bulls shall be made available for use to others at a fee not exceeding 10s. per cow. In the case of bulls under 2 years of age, the owner need not accept more than 15 outside cows during the first year, but no subsidy will be paid unless he can show evidence of having accepted not less than 10 outside cows for the same period. For bulls of 2 years or over the maximum number of cows that the owner must accept is raised to 25, whilst the minimum entitling him to a subsidy remains 10.
- g. The owner to supply to Department of Agriculture list of names of owners of cows and dates of service.
- h. The bulls shall be kept under conditions satisfactory to the Department of Agriculture.
- i. The purchaser of a bull shall have the right to refuse the services of such bull for any cows which he may have reason to believe to be suffering from disease; this to be subject to appeal to the Director of Agriculture.

## ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, June 13th, there being present Mr. W. S. Kelly (Chairman), Captain S. A. White (Vice-Chairman), Professor Arthur J. Perkins (Director of Agriculture), Messrs. F. Coleman, H. Wicks, W. G. Auld, and the Secretary (Mr. H. J. Finnis). Apologies were received from Colonel Rowell and Mr. C. J. Tuckwell.

*Galvanized Iron for West Coast Settlers.*—Reference was again made to the request of the Smoky Bay Branch that the Government should supply galvanized iron for water catchment purposes on the same terms as those on which fencing material was supplied to settlers. The matter was brought under the notice of the Commissioner of Crown Lands (Hon. G. R. Laffer, M.P.), who stated that full consideration had been given to it, but there would be no security for the advance on the galvanized iron if it were used as suggested by the Branch. The Secretary was instructed to advise the Branch accordingly.

*Protection of the Horse Breeding Industry.*—The recent Conference of Lower North Branches requested the Government to introduce legislation to protect the horse breeding industry of South Australia. The resolution was transmitted to the Minister of Agriculture (Hon. G. F. Jenkins M.P.), who stated that the Government had decided to re-introduce the Bill which provided for the registration of stallions during the next session of Parliament.

*Neglected Orchards.*—The Horticultural Instructor (Mr. Geo. Quinn), in reporting on the resolution carried at the recent Williams-town Conference, "That more stringent measures be taken to deal with neglected orchards and vineyards," said, "Whilst I am in accord with the resolution, I question whether those who made the request fully realize the position. At present the law restricts official action to (1) entering upon the land and carrying out the work the neglectful occupier has been directed by an Inspector to carry out and suing him for the cost; and (2) entering upon the land and destroying the offending trees and suing for the cost of same. In regard to the first, I take it these growers were referring to codlin moth infested orchards. It is quite impracticable for the Department to do the spraying which has been omitted by the occupiers, for the simple reason that this work must be done simultaneously all over the district, and not to say the State, and an immense battery of spraying outfits would have to be employed. In the case of the second resort, that may be applicable to abandoned orchards or small township, non-commercial plantations, but it is unthinkable that a valuable orchard should be sacrificed owing to one year's neglect, be it most abject in character. Whilst these two avenues are valuable—the first has proved quite practicable for the suppression of the red scale of the orange—I am of the opinion that the power which was once present in the Vine, Fruit, and Vegetable Protection Act, enabling recalcitrants to be

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(Late of Federal Taxation Dept.).



prosecuted for neglect, should be re-enacted to meet special cases where the present means of punishment are not applicable." It was decided that the report should be transmitted to the Minister, the Board supporting the suggestion contained in the last paragraph of Mr. Quinn's report.

*Rural Household Science Course.*—The Secretary was instructed, on the motion of Mr. F. Coleman, seconded by Captain White, to take such necessary action as might bring about the establishment of a course of rural household science for women on lines similar to those on which the Winter School for Farmers at Roseworthy Agricultural College was run.

*Wheat Prices.*—The Williamstown Conference asked that the Advisory Board obtain an explanation as to the difference in the price of wheat in South Australia, and New South Wales. On the motion of Professor A. J. Perkins, seconded by Mr. F. Coleman, the Secretary was instructed to communicate the request of the conference to the Chamber of Commerce in Victoria and New South Wales.

*Tod River Water Scheme.*—The Mallee Branch brought under the notice of the Board the serious position of the settlers regarding water supplies, and urged that the Government should push on with the Tod River Water Scheme. The Hydraulic Engineer, to whom this matter was referred, reported that a tender had been let for the laying of the first 70 miles of the leading main and the contractor had promised to push on with the work as fast as possible. A tender had also been let for the manufacture of a further 59 miles of pipes for the leading main. The Secretary was instructed to advise the Branch of the report of the Engineer.

*1923 River Murray Pruning Competitions.*—An intimation was received from the Minister approving of the appointment of Mr. C. G. Savage (Deputy Horticultural Instructor and Manager of the Berri Orchard) to act in the capacity of judge at the forthcoming pruning competitions. On the motion of Captain S. A. White, seconded by Mr. H. Wicks, the Secretary was instructed to thank the South Australian Gas Company, for their generosity in presenting the silver cups to be awarded to the winners of the competitions.

*Resolutions from Renmark Conference.*—The following resolutions were carried at the recent Conference of the River Murray Branches:—(a) "That this Conference affirms the desirability of stationing veterinary surgeons in the country districts." (b) It was decided to transmit the resolution to the Minister without comment. It was decided to forward the following resolutions to the Irrigation Commission:— "That the drain pipe machinery now in South Australia be put to practical use." "That the Government be asked to push forward with the drainage scheme in the Lone Gum and Monash area." "That this Conference is of the opinion that before any area of land is opened for irrigation, a thorough soil survey should be made to determine, first, whether the soil is suitable for cultivation, if so, what class or classes of products, especially if the soil contains a dangerous proportion of salt or is liable to seepage; secondly, if such salinity or seepage can be overcome by drainage and at what cost, and that no land be brought

under drainage where cost of drainage is likely to exceed the value of the land so drained." (c) "That the Government be asked to appoint a travelling citriculturist and viticulturist for the Murray districts and an instructor to soldier settlers." On the motion of Mr. H. Wicks, seconded by Mr. F. Coleman, the Board decided to support this request. (d) "That this Conference urges the Government to consider the locking of the Murray an urgent necessity." The motion was received. (e) "That this Conference in view of the desirableness of encouraging diversity of production in the irrigation areas, and of the great possibilities of cotton as a crop for the Murray Valley, and in view also of the evident necessity for thorough experiment respecting the varieties of cotton and methods of cultivation best suited to our local conditions, and other factors incidental to the successful production of cotton, urges the Government, to undertake such diversified experiments in a manner and on a scale befitting their importance." On the motion of Mr. F. Coleman, seconded by Captain S. A. White, it was decided to transmit the resolution to the Minister stating that in the opinion of the Board the question was one worthy of investigation.

*Resolutions from the Kalangadoo Conference.*—At the recent Conference of South-Eastern Branches resolutions suggesting that a bonus should be offered for some effective means of destroying rabbits and that District Councils should be empowered to deal with rabbits on Crown lands the same as on private holdings were carried. A communication was received from the Kalangadoo Branch stating that members were disappointed at the Board not passing the resolutions on to the proper authorities. The Board fully discussed the question and the Secretary was instructed to advise the Branch that the Board was not prepared to forward to the Government requests which they considered impracticable.

*Discussions at Bureau Meetings.*—The Collie Branch asked whether the discussion of a Government proposition, which members considered was not being conducted on right lines, should be allowed at Bureau meetings? The Board was of the opinion that so far as could be judged from the general nature of the terms of the letter of the Branch, there was nothing to indicate that a political question was involved.

*Noxious Weeds.*—The Williamstown Conference carried the following resolution:—"That the Advisory Board be asked to take steps to impress on the Government the need for enforcing the Noxious Weeds Act." It was decided that the matter should be brought under the notice of the Government and that the Report prepared by the Board in 1911 should accompany the resolution.

*Inspection of Potatoes.*—At the last meeting of the Board reference was made to the dual inspection of potatoes imported from other States to South Australia. It was mentioned that disease infected potatoes coming from other States were not allowed to be sold in South Australia. The Board who were anxious to ascertain the reason why locally grown potatoes which were diseased were allowed to be sold, and why potatoes, being imported accompanied by a certificate from

another State, were subjected to a further inspection on arrival and in cases condemned, referred the matter to the Horticultural Instructor (Mr. Geo. Quinn) who furnished the following report:—“The diseases commonly known as Potato Scab, Eel Worm, Irish Blight, Early Blight, Dry Fusarium Rot, and Bacteriosis are among the plant pests prohibited by a Proclamation issued under the Vine, Fruit, and Vegetable Protection Act, 1885, on August 14th, 1909, and Potato Moth by Proclamation published on August 6th, 1914. Notwithstanding these prohibitions (as these diseases are all established in this State), in administering the law with respect to potatoes arriving from adjoining States and when they are found, on examination, to be only slightly affected, they are sorted over by the Fruit Inspection Branch, if the consignee prefers that course to returning them to the consignor. The examination made consists of selecting at random 10 per cent. of the bags of each lot and spreading them on an open floor. Should the condition of these prove satisfactory, the goods are released to the consignee, providing the necessary proofs are at hand that they were not grown within 50 yards of any grape vine. If this percentage reveals many diseased tubers, more bags are tipped, and if the condition is not improved, the consignment may be picked over or rejected in accordance with the results. If not more than about 25 per cent. of the tubers are affected picking over is usually permitted. As to why certificates are not accepted, I may say the potatoes rejected a few weeks ago were very badly affected by potato moth, probably 75 per cent. in most bags being tunnelled to a destructive degree. These were certified as fit for export according to the certificates received, and effectively answers the query why an inspection on arrival is insisted upon. These instances recur with sufficient frequency to indicate that Victorian Inspectors' certificates are sometimes issued for potatoes other than those which arrive here. The local merchants consider the inspection on arrival here as their safeguard. The reason why locally grown potatoes which are equally infested by these diseases are allowed to be sold and distributed without restriction is a matter of Government policy.”

*New South Wales Agricultural Bureau Congress.*—On the motion of Mr. F. Coleman, seconded by Captain White, it was decided to send a letter of congratulation to the New South Wales Department of Agriculture on the occasion of the holding of the first Congress of their Agricultural Bureau.

*New Branch.*—Approval was given for the formation of a Branch of the Agricultural Bureau at Cungena, with the following gentlemen as foundation members:—J. Hull, A. H. and F. W. Gerschwitz, H. L. Stevenson, J. A. McInnis, E. T. Burke, H. H. Vaumard, A. B. and B. P. Quinn, R. L. Robertson, C. J. and E. R. McEvoy, W. C. Hebbelman, A. B. Hollamby, B. E. Harvey, C. L. Cotton, jun., F. W. Walter, P. J. Crowder, E. V. Barrett, W. T. Bryant, H. Adkins.

*New Members.*—The following names were added to the rolls of existing Branches:—Tarcowie—L. Keading; Rosedale—A. E. Carslake, C. Lienert, A. Heinjus, W. Smith, H. Braun; Mount Schank—J. Dornau;

## FAILURE TURNED TO SUCCESS.

Thanks to **KARSWOOD POULTRY SPICE**  
(Containing ground insects).

**T**HE difference between dismal failure and brilliant success in poultry keeping is sometimes a very small thing. In the case of Mr. Hewitt, whose letter is given below, the addition of **KARSWOOD POULTRY SPICE** (containing ground insects) to the soft mash, produced so many extra eggs, that failure was turned



to success, and his backyard fowls laid an average of 255 eggs per bird in one year, a really splendid result. You can do just as well by using

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Karswood Poultry Spice is my only friend. I have four White Leghorns and one Ancona fowl. I was doing very badly in eggs. One day my friend said to me—'Why don't you try some Karswood?' I took his advice, and tried it; it worked wonderfully, and since that day I have had good results, the average being 255 eggs per bird in one year. The Ancona laid 240 eggs in a year; altogether 1,260 eggs in one year from all five fowls. I think that my only friend is Karswood Poultry Spice. W. HEWITT.  
February 9th, 1923."

### "THE ONLY THING TO MAKE FOWLS PAY" IN DEVASTATED FRANCE.

"Cimetiere Anglais, Euston Road,  
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I buy your Karswood Spice from the General Trading Co. le Portel, Boulogne-sur-Mer, and I might say I am up in the devastated part of France, and the nearest house is half a mile away, so my fowls get the full benefit of all kinds of weather, and I find Karswood Spice the only thing to make the fowls pay. G. L. SHREEVE.  
February 5th, 1923."

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2s. packet	supplies	20 hens	32 days.
13s. tin (7lbs.)	supplies	140 hens	32 days.
14lbs. tins, 25s.		28lbs. tins, 48s.	

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## RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the rainfall of the subjoined stations for the month of July to the end of June, 1923, also the average precipitation to the end of June, and the average annual rainfall.

Station.	For June, 1923.	To end June, 1923.	Av'ge. to end June.	Av'ge. Annual Rainfall	Station.	For June, 1923.	To end June, 1923.	Av'ge. to end June.	Av'ge. Annual Rainfall
<b>FAR NORTH AND UPPER NORTH.</b>					<b>LOWER NORTH—continued</b>				
Oodnadatta.....	1.05	1.92	3.07	4.93	Spalding.....	2.50	5.30	8.58	20.41
Murree.....	1.69	2.74	3.30	6.14	Gulnare.....	3.90	7.49	8.22	19.34
Farina.....	2.32	4.68	3.80	6.73	Yacka.....	2.64	5.70	6.94	15.45
Copley.....	2.18	4.52	4.72	8.50	Koolunga.....	3.06	5.77	7.21	15.87
Beltana.....	2.28	4.60	4.88	9.05	Snowtown.....	3.38	6.57	7.40	16.08
Blinman.....	2.28	4.08	6.61	12.61	Brinkworth.....	2.61	6.63	7.20	16.26
Tarcoola.....	0.56	1.82	3.90	7.91	Blyth.....	2.25	7.03	7.76	16.96
Hookina.....	2.50	4.86	6.71	13.60	Clare.....	3.58	11.30	11.06	24.60
Hawker.....	2.80	5.88	6.31	12.93	Mintaro.....	4.43	12.26	10.13	23.40
Wilson.....	2.85	4.59	6.21	12.56	Watervale.....	4.09	11.17	12.55	27.44
Gordon.....	1.37	2.89	5.79	11.60	Auburn.....	3.42	9.31	10.95	24.30
Qoom.....	2.51	4.47	6.64	14.24	Hoyleton.....	2.76	5.70	8.16	17.85
Port Augusta.....	2.01	3.13	4.98	9.68	Balaklava.....	2.63	5.67	7.47	15.91
Port Augusta West	1.88	2.94	4.77	9.74	Port Wakefield.....	3.34	5.98	6.72	13.29
Bruce.....	1.61	3.20	5.13	10.76	Terowie.....	2.68	4.63	6.09	13.78
Hammond.....	2.28	5.87	5.69	11.90	Yarcowie.....	2.14	4.54	6.45	14.18
Wilmingtton.....	3.81	6.66	8.55	18.44	Ballett.....	2.46	6.27	7.05	16.47
Willowie.....	3.27	5.98	5.92	12.44	Mount Bryan.....	3.49	8.02	7.02	16.74
Melrose.....	6.95	11.03	11.01	23.88	Koorunga.....	2.54	7.19	8.09	18.06
Booleroo Centre.....	5.13	7.74	7.23	15.67	Farrell's Flat.....	3.03	7.95	8.49	18.97
Port Germein.....	2.68	4.65	6.33	12.93	<b>WEST OF MURRAY RANGE.</b>				
Wirrbara.....	4.34	7.93	8.90	19.85	Manoora.....	3.61	8.69	8.20	18.78
Appila.....	2.54	6.86	6.81	15.01	Saddleworth.....	4.10	9.72	9.01	19.74
Cradook.....	2.71	4.48	5.69	11.50	Marrabel.....	4.46	10.95	8.78	19.67
Carrieton.....	3.60	5.97	6.01	12.91	Riverton.....	4.75	10.86	9.46	20.71
Johnborg.....	1.91	3.53	5.03	10.85	Tarlee.....	5.54	12.04	8.11	17.81
Eorelia.....	2.96	5.08	6.34	13.56	Stockport.....	5.69	12.00	7.45	10.49
Orroroo.....	2.11	4.69	6.64	13.75	Hamley Bridge.....	5.34	10.82	7.69	16.52
Naackara.....	1.61	3.27	6.19	11.85	Kapunda.....	5.65	11.20	8.99	19.85
Black Rock.....	3.12	6.58	6.09	12.73	Freeling.....	5.10	12.02	8.11	17.90
Ucolta.....	2.10	3.24	5.71	12.10	Greenock.....	6.11	13.82	8.52	21.60
Peterborough.....	2.59	6.02	6.31	13.53	Truro.....	5.10	12.44	8.91	20.80
Yongala.....	3.22	7.11	6.51	14.51	Stockwell.....	5.39	13.36	9.06	20.31
<b>LOWER NORTH-EAST.</b>					Nuriootpa.....	5.15	12.26	9.36	20.99
Yunta.....	1.42	2.28	4.56	8.93	Angaston.....	5.64	13.57	10.00	22.48
Wankaringa.....	2.02	3.32	4.61	8.61	Tanunda.....	5.92	13.59	10.17	22.20
Mannahill.....	1.20	2.32	4.50	8.79	Lyndoch.....	9.06	17.35	10.17	22.88
Cookham.....	1.66	2.86	4.44	8.42	Williamstown.....	9.42	17.46	12.56	27.47
Broken Hill, N.S.W.	3.28	4.87	5.16	10.08	<b>ADELAIDE PLAINS.</b>				
<b>LOWER NORTH.</b>					Mallala.....	5.50	10.24	7.45	16.66
Port Pirie.....	2.82	4.68	6.71	13.55	Roseworthy.....	4.43	10.57	8.00	17.29
Port Broughton.....	3.49	5.31	6.95	14.27	Gawler.....	5.48	11.48	8.97	19.09
Bute.....	3.73	7.72	7.30	15.80	Two Wells.....	4.46	9.59	7.67	15.83
Laura.....	4.68	8.50	8.14	18.25	Virginia.....	5.58	10.92	8.25	17.31
Caltowie.....	3.23	7.15	7.55	17.19	Smithfield.....	6.18	11.51	8.97	17.16
Jamesstown.....	4.18	8.10	7.69	17.86	Salisbury.....	6.67	12.99	6.86	18.45
Bandedeer W. Wks.	3.32	7.91	7.62	18.05	North Adelaide.....	6.53	12.74	10.42	22.22
Gladstone.....	4.62	9.61	7.20	16.22	Adelaide.....	5.78	11.28	10.05	20.05
Crystal Brook.....	3.58	5.63	7.38	15.93	Glenelg.....	4.33	8.69	8.96	18.37
Georgetown.....	5.03	9.59	8.38	18.50	Brighton.....	4.55	9.81	10.04	21.34
Narridy.....	3.94	7.88	8.63	16.43	Mitcham.....	7.04	13.37	11.47	24.06
Redhill.....	3.88	6.94	8.97	16.93	Glen Osmond.....	8.13	14.91	12.28	25.78
					Magill.....	8.13	14.99	12.14	25.24

## RAINFALL—continued.

Station.	For June, 1923.	To end June, 1923.	Av'ge. to end June.	Av'ge. Annual Rainfall	Station.	For June, 1923.	To end June, 1923.	Av'ge. to end June.	Av'ge. Annual Rainfall
MOUNT LOFTY RANGES.					WEST OF SPENCER'S GULF—continued.				
Teetree Gully .....	10.70	19.41	13.08	27.65	Talia .....	4.31	7.77	6.38	16.45
Stirling West .....	13.24	28.36	21.58	46.59	Port Elliston .....	5.64	10.03	7.81	16.55
Uraidla .....	13.43	27.17	20.56	43.92	Cummins .....	4.57	9.04	7.67	18.00
Clarendon .....	8.64	18.52	15.52	32.98	Port Lincoln .....	4.11	8.65	9.08	19.72
Morphett Vale .....	5.41	11.72	10.76	22.79	Tumby .....	2.94	5.64	6.07	14.78
Noarlunga .....	6.91	12.10	9.65	20.35	Carrow .....	2.97	5.26	5.89	14.90
Willunga .....	8.15	14.11	12.12	25.89	Arno Bay .....	3.49	5.49	5.84	13.30
Aldinga .....	5.38	9.85	9.71	20.35	Cowell .....	2.21	3.56	5.92	11.75
Myponga .....	7.76	15.26	13.54	29.16	YORK PENINSULA.				
Normanville .....	5.73	10.55	9.84	20.61	Walleroo .....	3.77	6.92	7.21	14.18
Yankalilla .....	7.79	13.71	11.32	23.10	Kadina .....	3.86	7.90	7.84	16.05
Mount Pleasant .....	8.13	17.88	12.13	27.16	Moonta .....	3.29	7.09	7.74	15.33
Birdwood .....	8.59	19.50	13.05	29.33	Green's Plains .....	3.57	8.75	7.46	18.89
Gumeracha .....	10.76	23.73	12.39	33.29	Maitland .....	4.75	10.62	9.58	20.15
Millbrook Reservoir .....	10.70	24.09	—	—	Ardrossan .....	2.88	7.26	6.79	14.11
Tweedvale .....	10.85	23.02	15.83	35.55	Port Victoria .....	3.54	7.95	7.64	15.47
Woodside .....	9.29	20.39	14.13	32.11	Curramulka .....	4.00	9.07	8.33	18.22
Ambleside .....	10.55	23.65	15.17	34.67	Minlaton .....	4.08	9.72	8.39	17.91
Nairne .....	7.66	16.53	12.72	28.42	Brentwood .....	3.60	9.09	7.32	15.83
Mount Barker .....	8.67	21.29	13.81	31.18	Stansbury .....	5.18	9.60	7.74	17.04
Echunga .....	10.23	22.55	15.23	32.96	Warooka .....	6.29	11.59	8.13	17.81
Macleodfield .....	9.26	18.35	13.36	30.57	Yorketown .....	3.93	8.40	8.27	17.26
Meadows .....	10.05	21.71	16.11	36.04	Edithburgh .....	3.49	7.42	7.87	16.58
Strathalbyn .....	5.27	7.78	8.73	19.32	SOUTH AND SOUTH-EAST.				
MURRAY FLATS AND VALLEY.					Cape Borda .....	4.91	12.08	11.98	25.10
Mealingie .....	5.30	10.63	8.65	18.66	Kingscote .....	4.26	10.58	8.77	19.10
Milang .....	4.14	6.45	7.35	16.40	Penneshaw .....	3.03	7.08	8.21	19.39
Langhorne's Creek .....	5.28	8.06	6.61	14.61	Victor Harbor .....	5.66	9.40	9.98	21.45
Wellington .....	4.19	6.54	6.94	14.77	Port Elliot .....	5.55	9.52	9.36	20.28
Failen Bend .....	3.62	6.78	6.55	14.55	Goolwa .....	4.77	7.66	8.39	17.87
Murray Bridge .....	3.48	6.14	6.54	13.93	Pinnaroo .....	3.80	7.14	7.09	15.66
Lalington .....	4.47	8.24	7.05	15.42	Parilla .....	4.15	6.74	6.30	14.65
Manannam .....	2.17	4.41	5.69	11.64	Lameroo .....	3.99	7.49	7.05	16.37
Palmer .....	3.70	8.30	6.64	15.47	Parrakie .....	4.27	7.40	6.13	14.54
Bedan .....	2.84	6.46	5.86	12.29	Geranium .....	4.54	7.84	7.01	16.19
Iwan Reach .....	2.46	4.34	5.14	11.09	Peake .....	4.17	6.91	7.40	16.68
Blanchetown .....	1.45	2.66	4.96	10.16	Cooke's Plains .....	4.44	7.98	6.81	15.04
Indunda .....	2.67	7.84	7.86	17.54	Coomandook .....	4.26	6.77	7.74	17.48
Netherlands .....	1.89	4.58	5.02	11.19	Coonalpyn .....	5.24	8.47	7.70	17.42
Forgan .....	1.19	3.26	4.30	9.30	Tintinara .....	6.07	11.00	8.12	18.60
Vaikerie .....	1.33	2.58	4.66	9.91	Keith .....	5.30	9.67	7.83	18.17
Iverland Corner .....	1.33	2.77	5.27	11.07	Bordertown .....	4.81	9.44	8.53	19.44
Oxton .....	2.66	4.25	6.10	12.63	Wolsley .....	4.66	10.20	7.97	18.12
Lenmark .....	2.05	3.28	6.06	11.09	Frances .....	5.46	10.64	8.27	19.78
WEST OF SPENCER'S GULF.					Naracoorte .....	5.90	11.67	9.94	22.52
Nola .....	1.01	2.27	5.93	10.02	Penola .....	5.40	12.40	11.56	26.28
White Well .....	0.83	1.26	4.48	9.08	Lucindale .....	5.81	11.73	10.13	22.95
Cowler's Bay .....	4.32	6.79	6.27	12.16	Kingston .....	5.38	11.84	11.99	24.47
Enong .....	2.55	4.60	6.26	12.49	Robe .....	6.20	13.52	11.37	24.59
Edinna .....	2.33	4.14	4.84	10.36	Beachport .....	6.68	11.62	12.84	20.24
Moky Bay .....	3.32	6.90	5.16	—	Millicent .....	9.11	16.38	13.61	29.36
Etina .....	2.84	5.60	5.87	13.34	Kalangadoo .....	8.19	17.49	—	—
Breaky Bay .....	5.16	7.07	7.41	15.10	Mount Gambier .....	5.68	14.03	13.74	31.24

# **IMPORTS AND EXPORTS OF FRUIT, PLANTS, ETC., MAY, 1923.**

## **IMPORTS.**

### *Interstate.*

Apples (bushels) . . . . .	14,989
Bananas (bushels) . . . . .	6,136
Grapes (bushels) . . . . .	1
Passion fruit (bushels) . . . . .	169
Pears (bushels) . . . . .	26
Pineapples (bushels) . . . . .	170
Peanuts (packages) . . . . .	1
Melons (packages) . . . . .	1
Onions (bags) . . . . .	2,962
Potatoes (bags) . . . . .	28,840
Bulbs (packages) . . . . .	22
Plants (packages) . . . . .	34
Seeds (packages) . . . . .	76
Trees (packages) . . . . .	1
Wine casks, empty (number) . . . . .	2,829

Fumigated—1 package plants, 1 package trees, 27 wine casks.

Destroyed—3 bushels bananas, 1 bushel grapes, 1 second-hand case, 98 bags potatoes.

Returned—468 bags potatoes.

### *Overseas.*

#### **Federal Quarantine Act.**

Five thousand two hundred and twenty-five packages seeds, &c.

## **EXPORTS.**

#### **Federal Commerce Act.**

One hundred and two packages citrus fruit, 400 packages other fresh fruit, 2 packages preserved fruit, 62,754 packages dried fruit, and 3 packages plants were exported to overseas markets. These were consigned as follows:—

### *London.*

Dried fruit (packages) . . . . .	53,472
Preserved fruit (packages) . . . . .	2

### *South Africa.*

Dried fruit (packages) . . . . .	2,595
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### *New Zealand.*

Dried fruit (packages) . . . . .	6,160
Citrus fruit (packages) . . . . .	102
Plants (packages) . . . . .	3

### *India and East.*

Dried fruit (packages) . . . . .	127
Apples (packages) . . . . .	400

### *Canada (Vancouver).*

Dried fruit (packages) . . . . .	400
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## DAIRY AND FARM PRODUCE MARKETS

A. W. Sandford & Co., Limited, reported on July 1st, 1923:—

**BUTTER.**—Since our last report excellent rains have been recorded in the dairying districts, which means that the producers and the trade generally should participate in a good season. Already the local supplies of butter have increased to such an extent that South Australia is self-supporting, and actually at this moment we are exporting our surplus in bulk to Victoria and Western Australia. Values have shown slight fluctuations, and present prices are:—Choice factory and creamery fresh butter, in bulk, 1s. 9½d.; best separators and dairies, 1s. 7d. to 1s. 8½d.; fair quality, 1s. 3½d. to 1s. 5d.; store and collectors, 1s. to 1s. 3d.

**EGGS.**—The usual seasonable increase in supplies has taken place, and as the local demand has not been able to take all offering, values have come back to a figure which enables merchants to place their surplus on the interstate markets. Present rates ruling are fresh hen, 1s. 5d.; duck, 1s. 6d. per dozen.

**CHEESE.**—Values have shown only slight fluctuations, for the rates existing now are within ½d. per lb. of those ruling a month ago. Factories are now forwarding consignments of newly-made cheese, for which the local market has an exceptionally good demand, whilst the matured are meeting with fairly good sales, the range being from 1s. to 1s. 1d. for large to loaf.

**HONEY.**—The market has been fairly well supplied with all grades. Prime liquid samples have met with good interstate inquiries during the month at 4d. to 4½d.; best quality candied lines at 3½d.; lower grades somewhat dull of sales at down to 2d. Beeswax has been clearing at 1s. 3½d. to 1s. 4d. for best samples.

**ALMONDS.**—The local buyers have been importing fairly large parcels, which resulted in prices remaining stationary, for many growers are holding their last crop expecting better values. However, all consignments are clearing at the following rates:—Brandis, 9d. to 9½d.; mixed softshells, 8d. to 8½d.; hardshells, 4d. to 4½d.; kernels, 1s. 4d.; walnuts, 11d.

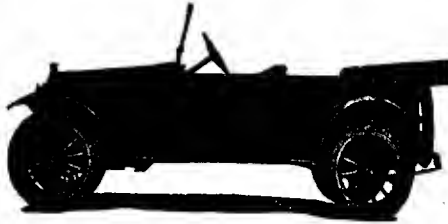
**BACON.**—At several sales curers were unable to purchase anything like the number of pigs they required, and for some little time we experienced a shortage of middles and rolls. However, at the present time the supply is about equal to the demand. Best factory cured sides at 13d. to 13½d.; hams, 1s. 4d.; middles, 1s. 4d.; rolls, 1s. 1½d.; lard, Hutton's, in packets 10d., in bulk 9d.

**LIVE POULTRY.**—We have submitted fairly extensive catalogues, which met with brisk competition, as poulterers exhibited keenness in securing their requirements. The prices obtained for prime-condition birds have been very good during the month, whilst in some instances birds of poor quality have naturally had to be cleared at lower rates to effect sales. We anticipate that the demand will exist for some time to come, and we strongly recommend consignments. Crates obtainable on application. The following rates ruled at our last auction:—Prime roosters, 4s. 9d. to 6s. 3d. each; nice condition cockerels, 3s. to 4s. 9d.; poor condition cockerels, 2s. 3d. to 2s. 9d.; plump hens, 4s. to 5s. 3d.; medium hens, 2s. 3d. to 3s. 6d.; some pens of weedy sorts lower; geese, 6s. to 7s. 6d.; ducks, good condition, 4s. 6d. to 6s.; ducks, fair condition, 2s. 6d. to 4s.; turkeys, good to prime condition, 1s. to 1s. 6d. per lb. live weight; do., fair condition, 9d. to 11½d. per lb.; fattening sorts lower. Pigeons, 9½d. each.

**POTATOES.**—Market has remained practically stationary during the month, until the latter end, when Victorian quotations were considerably higher, due, no doubt, to the excessive wet weather experienced preventing the digging and carting of the tubers. Rates here firmed in sympathy, and the quotations at the end of the month being prime Victorian potatoes, from 14s. to 15s. per cwt. on trucks, Mile End; in parcels a shade lower.

**ONIONS.**—There are still heavy stocks being offered, which meet with only limited demand. Values remain stationary at 7s. to 8s. per cwt., on trucks.

# HUPMOBILE



Almost any motor car might render good service to an expert mechanic. But Hupmobiles are made for people who enjoy using a motor car more than they do "tinkering" with it.

**PRICE, £515.**

Complete with nickel finish, spare tyre and tube, snubbers; painted any desired shade.

FULL PARTICULARS FROM

**PHOENIX MOTOR COMPANY, LIMITED**

**PIRIE STREET, ADELAIDE.**

## THE AGRICULTURAL OUTLOOK.

### REPORTS FOR THE MONTH OF JUNE.

The following reports on the general agricultural condition and outlook of the areas represented by the Government Experimental Farms mentioned below have been prepared by the respective Managers:—

*Booborowie.*—Weather—One very noticeable feature of the weather for June was the large number of days upon which rain fell; 277 points of rain was registered, and the highest fall for 24 hours was 40 points, rain having fallen on 18 days. Crops are germinating nicely, and at this stage of their growth nothing more can be said. Natural feed is making good headway for this particular locality. Stock—In a general way they are looking fair, and in some instances fat. Pests—Nothing worth mentioning at present. Miscellaneous—Most farmers have finished seeding, and fallowing will be general in a couple of weeks.

*Turretfield.*—Weather—The weather during the month has been very unsatisfactory for seeding, all classes of implements being bogged, and the land in such a condition that it has been impossible to sow wheat properly. Natural feed is suffering on account of the wet and dull conditions that have prevailed. Stock—Ewes and lambs have had a rough time with the wet. Horses and cattle have been hand-fed; otherwise they are very poor. Pests—Lucerne flea is prevalent; also slugs are numerous. Miscellaneous—A very large proportion of fallow is still unsown, and some will not be put in this year, but refallowed for next year.

**NOW IS THE TIME**

**TO PLANT FRUIT TREES.**

**Secure your requirements from South Australia's  
Premier Nurseries.**

**ALL LEADING COMMERCIAL VARIETIES STOCKED.**

**INQUIRIES SOLICITED.**

**BALHANNAH DECIDUOUS NURSERIES,**

**BALHANNAH, SOUTH AUSTRALIA.**

## AGRICULTURAL BUREAU REPORTS.

## INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings		Branch.	Report on Page	Dates of Meetings	
		July.	Aug.			July.	Aug.
Alawoona .....	*	—	—	Georgetown .....	*	28	25
Aldinga .....	*	25	22	Geranium .....	1129	28	25
Allandale East .....	1141	27	24	Gladstone .....	1105	—	—
Amyton .....	*	30	—	Glencoe .....	*	—	—
Angaston .....	*	—	—	Glossop .....	*	25	22
Appila-Yarrowie .....	*	—	—	Goode .....	*	25	29
Archurton .....	*	—	—	Green Patch .....	*	23	20
Ashbourne .....	1140	—	—	Gumeracha .....	*	30	27
Balaklava .....	*	14	11	Halidon .....	1126-9	25	22
Bahannah .....	1140	27	—	Hartley .....	1132	—	—
Barmora .....	*	24	21	Hawker .....	*	31	28
Beetaloo Valley .....	*	25	22	Hilltown .....	*	—	—
Belalie North .....	*	28	25	Hookina .....	*	26	23
Berri .....	*	26	29	Inman Valley .....	*	—	—
Big Swamp .....	*	—	—	Ironbank .....	*	28	25
Blackheath .....	1130	27	24	Kadina .....	*	—	—
Black Springs .....	1113	—	—	Kalangadoo (Women's) .....	*	—	—
Blackwood .....	*	16	20	Kalangadoo .....	1144	14	11
Block E .....	*	24	—	Kangarilla .....	1140	—	—
Blyth .....	†	7	4	Kanmantoo .....	*	28	25
Booleroo Centre .....	1101	27	24	Keith .....	*	—	—
Borrika .....	*	—	—	Ki Ki .....	*	—	—
Brentwood .....	1116	26	23	Kulkerran .....	*	24	21
Brinkley .....	1124	28	25	Kimba .....	*	—	—
Bundaleer Springs .....	1113	23	27	Kingscote .....	*	—	—
Bute .....	*	24	21	Kingston-on-Murray .....	*	—	—
Butler .....	1124	—	—	Kongorong .....	*	26	23
Calca .....	*	—	—	Koonibba .....	*	27	24
Cadell .....	*	—	—	Koppio .....	1120	23	20
Canowie Belt .....	*	—	—	Kybybolite .....	1141	26	21
Carrow .....	1117	26	23	Lake Wangary .....	*	28	25
Cherry Gardens .....	1121	24	21	Lameroo .....	*	27	24
Clanfield .....	*	—	—	Laura .....	1113	28	25
Clare .....	1115	27	—	Lenswood and Forest Range .....	*	—	—
Clarendon .....	*	23	20	Lipson .....	1120	—	—
Claypan Bore .....	*	25	29	Lone Gum and Monash .....	1129	25	22
Cleve .....	*	25	22	Lone Pine .....	*	—	—
Colliie .....	1124	28	—	Longwood .....	1140	—	—
Colton .....	*	27	31	Loxton .....	*	—	—
Coomandook .....	1129	25	22	Lucindale .....	*	—	—
Coonalpyu .....	*	27	24	Lyndoch .....	*	26	24
Coorabie .....	*	—	—	McLachlan .....	1124	7	—
Craddock .....	*	—	—	MacGillivray .....	1140	24	21
Crystal Brook .....	*	27	24	Maitland .....	*	25	23
Cungena .....	*	—	—	Mallala .....	1115	16	20
Currency Creek .....	1131	—	—	Mallee .....	*	27	24
Cygnat River .....	*	26	23	Mangalo .....	*	—	—
Darks's Peak .....	1118	—	—	Maramba .....	1127	23	—
Denial Bay .....	*	—	—	Meadows .....	*	25	22
Edillilie .....	*	28	25	Meningie .....	*	—	—
Elbow Hill .....	1124	3, 31	28	Milang .....	*	14	11
Eurelia .....	†	20	17	Milliecut .....	*	7	4
Farrell's Flat .....	1102-3	—	—	Miltalie .....	*	28	25
Frances .....	*	28	25	Mindarie .....	*	2	6
Gawler River .....	*	31	28				

## INDEX TO AGRICULTURAL BUREAU REPORTS—continued.

Branch.	Report on Page	Dates of Meetings.		Branch.	Report on Page	Dates of Meetings.	
		July.	Aug.			July.	Aug.
finlaton .....	*	27	24	Roberts and Verran ..	1122	26	23
finnippa .....	*	25	22	Rockwood .....	1135-6	23	20
fonarto South .....	1128	28	—	Rosedale .....	*	25	—
foonta .....	*	27	24	Rosy Pine .....	*	—	—
foorak .....	*	26	23	Saddleworth .....	1116	27	24
foorlands .....	*	—	—	S a d d l e w o r t h	*	10	14
foorook .....	1130	30	27	(Women's)			
foorchard .....	1101	28	20	Salisbury .....	§	3	7
forphett Vale .....	1132	26	23	Salt Creek .....	*	—	—
fount Barker .....	*	25	22	Sandalwood .....	*	—	—
fount Bryan .....	*	—	—	Shoal Bay .....	1140	24	21
fount Byran East ..	*	—	—	Smoky Bay .....	*	—	—
fount Compass .....	*	—	—	Spalding .....	*	—	—
fount Gambier .....	1141	14	11	Stockport .....	*	—	—
fount Hope .....	1120	28	25	Streaky Bay .....	*	—	—
fount Pleasant .....	*	—	—	Strathalbyn .....	*	31	28
fount Remarkable ..	*	—	—	Talia .....	1122	9	13
fount Schank .....	*	—	—	Tantanoola .....	*	28	26
fundalla .....	*	25	22	Taplan .....	*	—	—
furray Bridge .....	1130	17	21	Tarcowie .....	†	24	21
fypolonga .....	*	25	22	Tarlee .....	*	—	—
fyponga .....	*	—	—	Tatiara .....	1144	26	18
fantawarra .....	*	26	23	Two Wells .....	*	—	—
faracoorte .....	1142	14	11	Uraldia & Summertown	*	2	6
farridy .....	§	28	25	Veitoh .....	*	—	—
farrung .....	*	28	26	Virginia .....	*	—	—
festa .....	*	—	—	Waikerie .....	*	—	—
feshaby .....	1106-8	28	25	Wall .....	*	—	—
fetherton .....	*	—	—	Wanbi .....	*	—	—
forth Booborowie ..	*	—	—	Warcoowie .....	*	—	—
forth Bundaleer .....	*	—	—	Watervale .....	1116	—	—
forthfield .....	*	—	—	Weavers .....	1117	23	20
funker and Yurgo ..	*	1	6	Whyte-Yarcowie .....	§	—	—
'foughlin .....	*	23	22	Wilkawatt .....	*	21	25
froroo .....	*	—	—	Williamstown	*	4	1
'fwen .....	*	27	24	(Women's)			
farilla .....	*	—	—	Williamstown .....	1115-6	—	—
farilla Well .....	*	30	27	Willowie .....	*	25	22
farrairie .....	*	—	—	Wilmington .....	*	25	22
faruna .....	*	—	—	Windsor .....	*	24	21
faskerville .....	*	27	24	Winkie .....	1130	26	20
fata .....	*	—	—	Wirrabara .....	1110	—	—
fenola .....	1144	7	4	Wirrega .....	*	—	—
fetina .....	1121	28	26	Wirrilla .....	*	28	25
finnaroo .....	1128-30	27	24	Wirrulla .....	1123	11	—
fompoota .....	1130	11	8	Wolowa .....	*	—	—
fort Broughton .....	*	27	24	Wudinna .....	A.M.	23	25
fort Elliot .....	1134	21	13	Wynarka .....	*	—	—
fort Germein .....	*	28	—	Yabmans .....	*	—	—
fygery .....	*	28	25	Yacka .....	1110-2	24	21
fymco .....	*	23	20	Yadnarie .....	A.M.	24	21
fypid Bay .....	1135	7	4	Yallunda .....	*	—	—
fedhill .....	1109	3	—	Yaninee .....	*	—	—
fendelsham .....	*	25	22	Yeelanna .....	*	28	25
fenmark .....	*	26	23	Yongala Vale .....	*	—	—
fiverton .....	*	—	—	Yorke town .....	*	—	—
fiverton (Women's) ..	*	—	—	Younghusband .....	*	26	23

\* No report received during the month of June.

† Held over until next month.

‡ Formal.

A.M. Annual meeting.

## THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

### REPORTS OF BUREAU MEETINGS.

#### UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

MORCHARD (Average annual rainfall, 13.50in.).

June 2nd.—Present: six members and visitors.

WHEAT GROWING.—The Hon. Secretary (Mr. H. Tillbrook), in the course of a paper under the heading "Some Points in the Growing of Wheat," said the first work to be done in order to secure best results from the wheat crop was the preparation of well-worked early fallow. Fallowing should be pushed on with and completed in time to work the land back before the commencement of harvest. Land that was fallowed early could be worked deeply, but late fallow, *i.e.*, land worked after the end of August, should not be worked quite so deeply. The best method of bringing the fallow to a good compact seedbed was the employment of a flock of sheep and a set of good harrows. Immediately before seeding the land should not be worked too deeply. Late varieties of wheat should be sown first, and the early maturing sorts could be sown later. He did not favor starting seeding too early in the season, but would regulate the work in order to make an early finish; seed sown after the middle of June was, in most seasons, a failure, and as a general rule May was the best month for seeding. The grain should always be pickled carefully in order to avoid smut. It was a good plan to have a fair amount of pickled wheat on hand about a fortnight before seeding, so that the grain would have a chance to become thoroughly dry and feed more evenly through the drill. He was of the opinion that thicker sowings than those usually given were preferable. Over a bushel of most varieties and up to 75lbs. of early sorts were recommended by the speaker. Referring to heavier dressing of super, he did not think it necessary to use more than 60lbs. to 70lbs. to the acre in that district. Heavy dressings of super would not make up for deficient cultivation. As a rule, it would be found that a small, well-worked area was more profitable than a large area put in carelessly.

EURELIA, June 22nd.—The meeting discussed the question, "Rabbit Destruction." The use of the smoking machine, in preference to the fumigator, was recommended, owing to the high price of bi-sulphate of carbon. Matters in connection with the Conference of Upper Northern Branches, to be held at Morchard on July 25th, were also discussed.

#### MIDDLE-NORTH DISTRICT.

(PETERBOROUGH TO FARRELL'S FLAT.)

BOULEROO CENTRE (Average annual rainfall, 15.83in.).

May 25th.—Present: nine members.

FARMYARD POULTRY.—In a paper on this subject, Mr. R. J. Stanton said that poultry could be made a profitable side line if properly managed. The first consideration was the construction of a galvanized-iron shed, with iron posts, to

minimise the harbours for vermin. He preferred to allow the fowls to run out in the open during the day time, and shut them up at night. Strong, healthy stock, with good laying records, should be selected. The White Leghorn held the laying record, but the farmer also wanted poultry suitable for the table. White Leghorn cockerels sold well in the Adelaide markets as second class only; therefore, if they were crossed with a heavier breed, the progeny should be a good class of fowl for the farmyard. He preferred Minorcas crossed with Indian Game, because both were good layers, and large birds with plenty of flesh. Turkeys were very profitable, and with a little care were not much trouble to rear. When about three months old they were able to look after themselves, and if they had a stubble paddock in which to run, they would pick up a lot of wheat and oats. One hundred and fifty turkeys at 10 to 12 months old would weigh about 1 ton, and at 1s. per lb. would realise £112, which, he felt sure, was worth a little trouble. A good discussion followed the reading of the paper.

#### FARRELL'S FLAT.

March 29th.—Present: 22 members.

**HORSE versus TRACTOR.**—Mr. W. Bailey, who contributed a paper dealing with this subject, first referred to the hardships under which the pioneers of the wheat industry labored, and considered that the position held by the modern agriculturists was due in no small measure to the work that had been performed by the horse on the farm. It was claimed that the tractor had been thoroughly tested under Australian farming conditions, but, so far as he had been able to learn, such tests had been confined to those of fuel consumption. What still remained to be proved was the durability of the tractor. The man who advocated the tractor claimed that horses became old and died. That could not be denied, but most farmers bred one or two foals each year to maintain the strength of the team, and if they were not kept until they became too old, they could be sold for a good price. On the other hand, the tractor depreciated in value every time it was worked. It was also a noticeable fact that farmers who used the tractor also kept a team of horses on the holding. Another fact worthy of notice was that the man who advocated the use of the tractor was one who took no pride in his team, and did not keep a good type of horse to do the work. The tractor would possibly be the right form of motive power for some farmers, because if they ill-treated it no one would suffer but the farmer. The tractor could be shown to advantage during suitable conditions, but tests under adverse conditions were also necessary if the thorough adaptability of the machine was to be tested. It was claimed that farming could be carried on better and more cheaply with the tractor than with horses, but Mr. Bailey stated that some of the ploughing he had seen performed by the tractor could not be compared with that done by a good team of horses. Cheap farming operations, if not thorough, were not profitable. The horse team might possibly be a little more expensive, but it performed the many duties of the farm in a thorough workmanlike manner. The tractor and the fuel for its locomotion were procured from a country where they were infinitely cheaper than in Australia. The Australian farmer had to pay for the importation of both, and in addition to that he had to rely on the markets of the world for the value of his produce. The speaker then quoted from an English paper, in which it was contended that the set-back which the agricultural tractor had received meant more for the revival of horse teams than the advantage which was claimed would accrue to mechanical power as a result of the passing of the horse, of which the tractor was supposed to be the advent. The main reason for believing that the horse would reassert itself in agriculture was because it had been found by experience to be more economical than mechanical power. One of the greatest factors telling against the more universal adoption of the tractor was that of depreciation. Even assuming that a tractor of one of the best makes was purchased, which would last for perhaps three or four years, depreciation at the rate of 33 per cent. would have to be written off, and at the end of that period the machine would be of very little value. By no means was he prejudiced against motor power, but at the same time he did not despise the work that was performed by the horse. The speaker admitted that during harvesting operations the tractor was able to take off the crops very rapidly, and could, no doubt, be used on very large farms; but he was convinced that for the small farmer the horse team was the best.

## FARRELL'S FLAT.

April 27th.—Present: 24 members.

**TRACTOR VERSUS HORSES.**—A paper was read by Mr. C. Humphris. After referring to the altered economic conditions of recent days, the paper read:—"The only direction in which we can look to increase the profits from the farm is in the reduction of working expenses, improving value per acre of the crops, and cropping a larger acreage each year, by using the paddock which is now used for the horses. The only way those improvements can be effected is by the employment of a good-quality modern tractor. With horse teams only a certain acreage can be covered per day, and the ideal time for putting in the crop is extremely limited. After that period, no matter how well the work may be done, the later-sown ground will not produce such good crops as the land that had come under treatment at the ideal period. The later in the season the work is left the harder it becomes, and one also has to face the fact that the work over which the team was being strained will only bring in about 50 per cent. of the return that would be secured from the land that had been first sown. The point I wish to emphasise is that no machinery, however good, will assist in growing as good a crop from land that had been worked late as from land that had been sown early in the season. Horses cannot stand the strain long enough to get all the crop in, in that short period in which the best of the crops are grown." Farmers 15 years ago obtained equal results to those which farmers of the present day were securing. They worked horses, so did the present-day farmer. Farmers generally agreed that the drill could not be improved upon, yet they were still dissatisfied, so that if they wished to progress, some improvement in motive power would have to be effected. The combined drill and cultivator was more of a labor-saving device than an actual improvement of machinery. At the present time it was necessary for the farmer to rise at 4 o'clock in the morning, in order that he could be out in the paddocks at 6.30. Except for the half an hour for breakfast, the other time was, to all intents and purposes, wasted. He did not mean that there was nothing to do; the horses had to be fed, watered, feed prepared, and the horses caught and harnessed. Young horses were usually broken at that busy time, and they added their quota to the waste of labor. The hames had to be carefully adjusted, sore shoulders attended to, and numerous other little jobs taken in hand. If the work were some distance from the home-stand, nosebags had to be prepared, while if the paddock that was being worked was close at hand, the teamster should be able to start at about the same time as the man with the tractor, who did not rise until 6 o'clock. In the event of the field being a couple of miles away, the operator of the tractor could ride out to work on a horse, whilst the teamster had to walk out with his team. "At dinner time the horseman takes the team out, unharnesses, feeds and water the animals, and then harnesses up again, and he has done very well if the team is moving off in under two hours. The tractor driver simply turns off the kerosine, has dinner, and is back at work in half an hour, and has five or six acres of land turned over before the teamster makes a start. At night the man with the tractor can stop whenever he feels inclined, and if electric headlights are fitted to the engine, he can see just as well on a dark night as a man driving a motor car. When the tractor stops, the driver virtually leaves his team, equalling 10 to 12 horses, harnessed up and fed in the paddock and waiting for a start next morning. The teamster, however, has had to stop at dark, take the horses home, unharness and feed them, and then sit down to his own tea. Still the work is not finished; he has to go out again and feed up for the night. On wet days the teams have to be stopped, and on good working days chaff has to be cut. Then when that job is finished, a spell of rain falls, and the team is still idle. A neighbor told me that during one such wait in fallowing time his team ate 15 tons of chaff. This meant an expense of £60 and a few days' hard work in cleaning out the stable; £60 would purchase 100 cases of kerosine, and if one only ploughed five acres to the case, it would mean fallowing 500 acres. This point is worth emphasising—500 acres could have been ploughed at a cost equal to the amount it took to keep the team until it could start again. While I was working with horses, I used two four-furrow ploughs, two men to drive them, and used to find myself continuously occupied getting hay from the stock to the cutter, feeding the teams at dinner time and at night, cleaning the stables out, keeping swings in order, and attending to sore shoulders, in order that the team might be kept working as regularly as possible. We used to average 8 acres a day, and it



took three men to do it. With the tractor one man can do 12 acres a day. I had nothing to do in connection with the fallowing, and the driver, although ploughing more than 50 per cent. more each day than the three men employed with the horses, assured me that he was not so tired at the end of the day as he had been when driving one of the teams. It is very satisfactory to find means by which the work of three men can be done by one, and that on one man's wages and keep. Besides the speed with which tractor ploughing can be accomplished, there is the difference in cost per acre, which should have a very strong appeal to farmers in these days of small profits and slow returns. Recently a farmer told me that he was offered ploughing at 7s. 6d. per acre next door to his own farm; but on going into costs he found that it would not be a profitable undertaking. He may have considered the proposition in a very different light if he had had a tractor, which would plough at a cost of 2s. an acre, and could do 12 acres per day, instead of four. With the teams the farmers are so long completing the fallowing that they usually have to finish the work when the land is too dry for good ploughing, even though the work was started when the land was too wet to make a good job of the fallowing. However much the land might be bogged, we are compelled to push on with the work before the land becomes that dry that the ploughs cannot work. When the land has been cultivated, it needed harrowing and rolling to bring it to a reasonable degree of tilth. During this season we cultivated one paddock of 140 acres in four days, and commenced and finished work at the same time as the horse teams, which were doing from 12 acres to 15 acres each day. When there is more than one job to be done in the fields, there is no reason for not doing them all together. The cultivator with the harrows attached behind does a good job, or, if the land is somewhat rough, the roller can be attached to the cultivator, and the harrows to the roller, thereby doing three distinct jobs in the one operation, with no additional work for the driver. Shifting from one paddock to another entails no waste of time in taking down and putting up swings. In the matter of harvesting, the tractor is an ideal method of supplying power to work harvesters and headers. Almost every fault that can be found with horses for harvesting is absent in the tractor. The team draws a harvester at a very different rate of speed down hill to that at which they go up the hill. Even small depressions in the land appreciably alter the speed of the harvester; this means wheat thrown out at the fastest speeds and chaff taken in while the machine is travelling slowly. The tractor goes up hill and down hill at exactly the same rate of speed. It does not swerve into the crop to take a mouthful of wheat, or dodge a thistle, as does the team. There is not the difficulty in managing the tractor that there is when one had to control eight separate units, which are unable to pull straight ahead, but have to hang out from the crop to make the harvester run in a straight line. There is generally a horse that wants to go more slowly than the others, one which wants to travel more quickly, one which wants to follow the wheel track, and objects to being pulled out of it. Every touch of the whip means a speed up, and a consequent throwing out of more wheat. In harvest time we can seldom commence to reap really early. As a rule one just starts when it is time to stop for dinner, which means a loss of two hours of the very best part of the day for reaping. In a week that will amount to 12 hours, and at eight bags per hour in a 20bush. crop, represents 96 bags. This time saved in a fortnight of reaping might possibly mean completing the work before a hailstorm came along and knocked down the crop. Again, during harvest time rain might fall, which takes 6lbs. or 7lbs. of weight for every bushel, and results in a dock of 3d. per bushel for bleached wheat. Again, the saving of time might be the means of completing harvesting before the occurrence of a fire, which is an every-day possibility. There are times when it is problematical whether it is warm enough to reap. We try a head or too, and consider the straw too tough; but we see a neighbor reaping, so we make a start, only to find that the crop is too tough, and that we are leaving more heads on the stalks and on the ground than in the machine; but as so much time has been taken up in harnessing and making a start, we are unable to stop and go on with something else. The man with the tractor, in the same position, merely drives the machine for a chain or so, and knows in five minutes whether the crop can be reaped. If he cannot go on, he simply stops the engine, and goes on with the sewing of bags. I have not used my tractor for road work, but I have no fears as to its performances if it is

needed for such duties. In the matter of comparisons of costs between a farm worked with horses and one worked with a tractor, it can be taken that 15 horses, valued at £375, are necessary to work 300 acres; harness, £150; engine and cutter, £150; binder, £200; stable and chaffshed, £200; paddock of 20 acres, at £10, £200; hay paddocks, fallow, and crop, 25 acres at £10 per year, £500; man's wages and keep, including harvest, £150; interest at 7 per cent., £128—making a total of £1,953. With the tractor equal in power and able to crop 300 acres—Tractor, £700; shed, £30; interest, £30; total £780. In connection with the horse feed, the farmer two years ago ploughed the hay paddock and rendered it useless for all feed purposes, he expended money to have it ploughed, cultivated, and harrowed. Last year additional funds were expended in wheat and super drilling, harrowing, binding, hay carting, and twine. That 25 acres, worth £250, was used entirely for producing hay, and interest had to be paid on it to secure hay that will be needed for this year. Instead of having money invested and paying interest for two years, in order to supply power to work the farm during the third year, I send an order to the city for kerosine a week before it is needed. I use the kerosine, and pay for it afterwards. I have no interest to pay for the power, while the man with the team has paid interest for two years. I have a number of kerosine cases and tins, which can be turned to many useful purposes on the farm. The teamster has a yardful of manure, which entails a good deal of work, and if carted on the land means the distribution of hundreds of weeds all over the paddocks." The speaker then traced the progress that had been made in the agricultural industry, first referring to the time when work on the land was performed with bullock teams, and how the users of those animals prophesied failure to those progressive farmers who introduced horses for work on the land. The tractor had now made its appearance, and the end of the day of the horse was in sight. "I do not go so far as to say that any tractor is better and cheaper than horses," he continued. "A man would be better off with a good team than with a bad tractor. The matter of finding out the difference between good and bad tractors is something that requires considerable discrimination, because we are in the pioneering stage of tractor farming." Reference was then made to several types of tractors at present on the market.

#### GLADSTONE (Average annual rainfall, 16in.).

June 1st.—Present: 10 members and several visitors.

The monthly meeting of the Branch was held at the residence of Mr. C. O. Bennett, when Mr. A. J. Lines contributed a paper entitled "Out Buildings on the Farm." The lay out of the farm buildings, he said, required a considerable amount of consideration as to where and how to construct them, and the cheapest method of construction. For the situation of the stable, the best piece of ground suitable, with a gentle slope, and at some distance from the homestead should be found. He preferred stone walls with an iron roof. Straw was not permanent, and required a considerable amount of labor in renewing it from time to time; it was also a harbor for sparrows and many other pests. For the manger he preferred a wooden frame with sheet iron inside, because it would be the most serviceable. The manger should be made the full length of the stable, with an opening in the centre to enable one to pass from the stable yard to the back of the manger. The stable yard should be enclosed by a post-and-rail fence, because that was the most convenient and substantial. If a large barn was built, it could be used for storing chaff as well as for wheat and oats. The barn could be connected with the back of the stable for convenience, and built of either stone or iron, and roofed with iron, with a floor of timber or cement. The barn should have a door at each end, and one in the centre opening on to the manger, so that chaff could be carried to the horses without any difficulty. The implement shed should be constructed with wood and iron, one side of which should be either left open or fitted with running doors. No farm was complete without a blacksmith's shop and a proper equipment of tools. A cowshed would be needed, with a yard adjoining large enough to stable as many cows as required. He thought three good cows were sufficient for the ordinary farmer. For the pigsties he considered it was a good plan to have a passage down the centre, and the sties on either side, so that there would

be no trouble when feeding the pigs. The poultry should also be considered, and housed at night to protect them from foxes, which were plentiful in that district. The poultry house should be constructed of iron, with second-hand inch piping hung with wire from the roof for perches, so that, if necessary, it could occasionally be cleaned out to free it from all vermin. During the discussion which followed, Mr. J. H. Sargent thought the stable opening should face the east. Mr. Hollitt thought the first consideration should be given to the water supply. Mr. Stevens would not build the barn and stable in close proximity. He mentioned an instance where that had been done, and a fire which occurred proved disastrous. To ensure an adequate water supply all the year round he would install galvanized-iron storage tanks of liberal capacity. Mr. C. H. Lines would construct the barn close to the stable for convenience and labor saving. The implement shed, however, should be placed at a considerable distance from the stable. Mr. Black said that where piping was used for perches, care should be taken to stop up the ends. That would prevent draughts going through, and keep the perches from becoming too cold in the winter.

Mr. J. S. Fisher then contributed a paper entitled "Oat Growing." During the last two years, he said, he had been experimenting in the growing of oats for hay on hay stubble land. During 1920-21 he sowed two varieties, namely, Scotch Grey and Calcutta Cape. The Scotch Grey grew very thick and rank, and ripened very early, but owing to the very wet spring the crop was badly affected with red rust. The Calcutta Cape ripened about a fortnight later. The crop did not grow so rank as the Scotch Grey, and, being a late variety, it escaped the red rust, and made an excellent hay. In 1921-22 he sowed Scotch Grey, Calcutta Cape, and Algerian oats. The Scotch Grey did not grow so rank, was not infected with rust, and, owing to maturing early, had an advantage over Calcutta Cape and Algerian, and made a first-class hay. The Calcutta Cape did not do so well, and, being a late variety, it was affected by the dry spring. It received no rain after coming into ear until harvested. It also made good hay, but he thought if it had received a good rain within the time mentioned it would have yielded a better return than the Scotch Grey. The Algerian oats matured before the Calcutta Cape, and gave about the same yield. That variety was also affected by the dry spring. He preferred the two other varieties for good quality hay, because the Algerian had an objectionable red-colored straw. During 1922-23 he was sowing Algerian, Scotch Grey, and Sunrise. He was unable to secure seed of the Calcutta Cape variety. He thought if farmers experimented in the growing of oats on their stubble land they would find it was a paying proposition, especially if an early variety could be procured, because it could be harvested and stacked before the wheat was ripe. A good discussion followed the reading of the paper.

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#### NELSHABY.

March 31st.—Present: eight members and visitors.

PREVENTION OF SMUT.—Mr. E. Franks contributed a paper dealing with this subject, in which he said the first step in the prevention of smut was to obtain seed wheat free from the disease. Next the grain should be pickled, and while there were numerous methods in vogue, he favored that of pickling in a box large enough to hold a bag, without the sack, of wheat, in order that the smut balls that rose to the surface could be skimmed off. He always used a solution of 1lb. of bluestone to 4galls. of water. The grain should be well stirred and allowed to remain in the pickle for about two minutes before being rebagged. It was a good plan to pickle the wheat a few days before it was needed, in order that it would be thoroughly dry before being placed in the drill. If the wheat was pickled on a floor and allowed to remain over night, it dried very quickly. The speaker had always obtained good results from seed that he had pickled in the manner indicated above, and he was of the opinion that weather conditions were an important factor in the development of smut. He had proved that when smut had been present on the wheat, and the grain was sown during showery weather, it would, unless thoroughly pickled, be badly affected when harvested.

# Cyclone Spring Coil Fence

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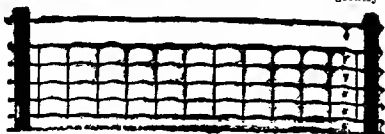


Fig. 7—Cyclone Special Spring Coil Sheep Fence.

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## NELSHABY.

April 28th.—Present: seven members and many visitors.

**CONSERVATION OF FODDER.**—Mr. L. C. Roberts contributed a paper on this subject, in the course of which it was stated that the conservation of fodder for livestock formed one of the most important branches in the present-day system of agriculture, and with the high price of land, and consequent reduction of holdings, it was growing in importance, because it was one of the most efficient ways of combating the evils of drought. The food for stock was derived mainly from the following crops:—Wheat, oats, barley, natural grasses, and herbage, and, in some favored spots, lucerne, peas, and various summer grasses. The two first mentioned were the best cereals from which to obtain the main supply of fodder, and the best way to deal with them was in the form of hay. Wheat for hay should be cut whilst the grain was soft, and while there was still sap and color in the leaves of the plant. The oat crop should be left somewhat longer, because if it was cut in a green condition it made bitter hay. The stock preferred oat hay if it was cut when the grain was firm and the stalks were turning purple. Stooking required judgment. Crops that had been cut on the green side, and heavy-headed, over-ripe hay should be allowed to dry out and stiffen before being stooked; but if cut at the right stage the sheaves could be stooked immediately after the binder. On no account should the hay be allowed to become too dry. Climatic conditions should also be watched, and if there was any possibility of rain falling the hay should be stooked without delay. If it was allowed to lie on the ground it became very sodden with the rain, and would be bleached with the sun. So soon as it was sufficiently dry, the hay should be carted and stacked, because the longer it was left out in the weather the more would it deteriorate. If stacked in the open it should be thatched at the first opportunity, and if likely to be left for any length of time, iron should be placed around the stack to keep out the mice. Barley was not so suitable for conservation as hay, owing to its bellow straw and beards, but if it was cut whilst it still held a good color, it would make a good fodder for cattle. Of the natural grasses and herbage, wild oats seemed to be the only fodder that could be profitably conserved in the form of hay. Wild oats made a good sample of hay if dealt with intelligently and quickly at the right stage; but such a crop was far more difficult to handle than the cultivated cereals, because it turned very quickly from being too green to too ripe. It was bitter and light if cut on the green side, and if cut on the dry side it dropped the seeds, the stalk turned white, and the plants contained very little nutriment. Wild oats should be cut in the golden color stage of growth to secure weight, color, and nutriment. Wild oat hay spoilt very badly if a rain fell on it before being stooked. It also had a tendency to retain the rain in the tops of the stooks if they were made too large, so that it was best to make medium-sized stooks and bring the tops of the sheaves close together. When stacking the hay, the centre of the stack should always be kept full, so that if it rained at any time whilst either putting up or taking down the sheaves, the steep slope from the top of the stack would have a tendency to run off the water. Lucerne and peas, when grown in small quantities, would be of far greater use to the farmer, if fed to the stock whilst green; but he was aware of the value and high feeding properties of lucerne hay. Although not used extensively, ensilage could be made from practically any green feed, and it was an excellent fodder for milking cows. The drawbacks against the more general practice of ensilage making were that the crops were more difficult to deal with in cutting, and to do the job properly a silo had to be made, and means of cutting into chaff and conveying it into the silo provided; but he thought that ensilage was a means of conserving good succulent fodder that should receive more consideration. The best way of conserving straw was by cutting portion of the wheat, oat, or barley crop just before it was quite ripe, stooking the sheaves quickly, and threshing at the earliest possible opportunity. By that means a large supply of straw would be secured, and if protected from weather would keep indefinitely. When the harvest was over the farmer should rake up the best straw for putting into stacks as a standby in case of drought, and also as a protection for the stock. By the best straw, he did not mean the tallest and rankest, but rather that from the varieties of wheat favored by the stock. It was possible to keep quite a large supply of fodder in the form of grain, oats perhaps being the best, with barley a close second; but before keeping too much in that way, he strongly

advised building a rain and mouse proof barn. Bins should be provided, and one should also have some efficient method of dealing with weevils. He thought it advisable to have a two years' supply of fodder always on hand. In conclusion, the following points should be kept in mind:—"Cut the hay at the right stage, store it well, protect it properly, and avoid waste. Do not erect the stack where floodwaters will run around and under it, neither put it where the sand is likely to drift into the hay, and, when using, see that the mangers are kept clean."

#### REDHILL (Average annual rainfall, 16.79in.).

June 5th.—Present: eight members and two visitors.

**THE BLOWFLY PEST.**—The following paper was read by Mr. H. J. Crouch:—"The losses to farmers and the pastoral industry throughout Australia as a result of the ravages of the blowfly are almost incalculable, not only by the loss of wool on the part affected, but to the whole fleece of each individual sheep that is attacked by the pest. The flies also attack the lambing ewes, and the lambs of the ewes that are struck by the pest almost invariably die, if the ewe does not receive immediate attention. These losses are helping to reduce the flocks of sheep each year in South Australia. On dealing with the pest from a point of view of the introduction of an effective remedy, I consider that one of the best practices for the farmer to put into operation is the destruction of all dead animals and other carrion by burning after the flies have deposited their eggs in the carcasses. If each individual sheepowner systematically carried on the work of destroying all matter in which the blowflies could breed, the number of flies would be considerably reduced. To be successful, constant care and attention are necessary in the management of sheep. The owner must be watchful, vigilant, and attentive, both during the summer and winter. The flock must be constantly watched to see if any of the sheep have been struck by the flies. Sheep that have been attacked should be yarded, or caught in a corner of the paddock, and the affected parts shorn very cleanly. To kill the maggots on the affected animal after it has been shorn, an application of a mixture of kerosine and oil will give good results. There are a number of advertised remedies that will destroy the maggot and render the sheep immune from further attack for a lengthy period, and these should be well worth trying. Lambs that have been tailed at the wrong time of the year are especially liable to be struck by the fly. To reduce the danger to a minimum, the lambs should be tailed as rapidly as can be done with care, and the purse and the tail smeared with Stockholm tar. The sheep and lambs should then be moved to an open paddock, away from all buildings, stacks, yards, &c., and an effort made to tail the lambs at a time when the flies are not so prevalent."

#### TARCOWIE (Average annual rainfall, 15½in.).

May 29th.—Present: 17 members.

**FERTILISERS.**—In a paper on this subject, Mr. W. H. Thomas stated that fertilisers were playing an increasingly important part in that locality, as in other districts of the State. Agricultural experts were recommending heavier dressings, and he thought it was a paying proposition to apply 1cwt. per acre; but their soil was very uneven in texture, and some classes needed other manures besides superphosphate. Stable manure benefited red soils and salty or magnesia patches, and in order to use the manure to the best advantage it should be heaped as soon as possible in some convenient spot, and allowed to rot thoroughly before being carted on to the land. The main consideration of the average farmers as regards stable manure was to get rid of it as quickly as possible, and the result was that it was often thrown into the gutters, and washed into a creek. The manure should be spread on the land just prior to ploughing. It improved the red land by opening the surface soil, and kept it loose, thereby assisting in the retention of the moisture and preventing a crust forming. He also thought that some of the land in that district would be benefited by a dressing of lime. In the discussion which followed, Mr. D. Smith said he thought that heavier dressings

of super would pay in increased returns that would be obtained. Last year he had a few bags of super over after seeding all the fallow ground, so he ploughed up a few acres of pasture land, using 150lbs. of super, and he received a return of 2lbush. per acre. Stable manure, he thought, should be carted out and ploughed into the land. Mr. C. A. Kotz said that at one time not more than 56lbs. or 60lbs. of super was used, and that amount was considered quite sufficient; but now the amounts used were from 100lbs. to 150lbs. per acre. It would mean a big item if still heavier dressings had to be applied after a few years. He thought if stable manure was sown through the drill, greater benefit would be derived from it. Mr. W. S. Ninnies said that farmers kept on using the same kind of super year after year. He had procured three different kinds this year, and hoped to see some improvement in the returns. About 20 years ago they had tried the plan of sowing stable manure through the drill. Special feeders had been made to handle double the quantity per acre, but so far as any benefit was concerned, it did not pay for the carting out on to the land.

#### WIRABARA (Average annual rainfall, 18.91in.).

May 5th.—Present: 14 members and visitors.

**SAVING TIME AND EXPENSE ON THE FARM.**—In the course of a paper dealing with this subject, Mr. F. E. Borgas said there were many methods whereby a farmer could save time and expense on the farm. In the first place, the latest labor-saving implements, machinery, and tools should be brought into operation for the cultivation of the soil and the harvesting of the crops. Every farmer should be equipped with one or more engines to do the chaffing, crushing, sawing, and pumping, and other jobs that required engine power. A tractor was a valuable acquisition to the farm, for in addition to being able to perform the work of an ordinary engine, it could also take the place of the team in the paddock during seeding, harvesting, and cultivating. To save time and expense every farm should have permanent water in every paddock. If that was provided, it would save a lot of time driving the stock to water, and the stock would also keep in better condition. The provision of a blacksmith shop was also a means of saving a great deal of time and expense. A handy man with tools could do a lot of repairing on the farm in the smithy, instead of losing time in taking the work to the nearest town. He was in favor of erecting the sheds with iron. Such buildings were more expensive than straw sheds, but there was no doubt that the former were better in the long run. With straw sheds one had to put on a new straw roof every two or three years. In addition to that, they were a harbor for mice and rats. When haymaking, it was a good plan to cart and make a haystack in a paddock where there was plenty of water. That would save taking the stock home every day to feed them. Sheaves of hay could be thrown over the fence of the stack yard, and the stock could eat the fodder when they felt inclined to do so. Kerosine, benzine, oil, and grease should be purchased in fairly large quantities direct from a firm, in order to save the profit of the middleman, and obtain a cheaper freight. The same applied to all other necessities, such as files, bolts, wire, plough and cultivator shares, fork handles, or tools. All tools and appliances should be kept sharp and in good working order, otherwise one could not expect to save time and expense on the farm.

#### YACKA.

May 18th.—Present: 15 members.

**DAIRYING.**—In the course of a paper dealing with this subject, Mr. E. Billinghurst said the land selected for the dairy farm should be good grazing country, with an abundant supply of fresh water. If it was necessary to excavate a dam, a fence should be erected to keep the animals from polluting the water. He considered the most profitable cows to be the Milking Shorthorn, the Holstein, and the Jersey. The nervous system of the cow controlled to a very large extent

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the milk flow, so that proper provision should be made for the comfort of the animals. Straw shelter sheds should be erected in the paddocks, and it was also advisable to plant a belt of trees for breakwinds. During the very cold months of the year, Mr. Billinghamst considered it advisable to rug the cows. Quite a comfortable and serviceable rug could be made with three wheat bags. Milking should be performed at regular intervals, and at regular hours. If at all possible, the cows should be milked by the same person, the work being done as quickly as possible. If a cow was a "tough" milker, it was a good plan to rub the teats between the palms of the hands. That usually had the effect of making the milking much easier. After all the milk had been taken from the teats, the quarters should be squeezed to make certain that all the strippings had been taken from the udder. Each cow should be tested twice each week, immediately after milking, so that the dairyman would be able to ascertain the most profitable animals in the herd, in order to indicate which would be the best animals to breed from to build up the herd. Cleanliness should be observed in every detail with respect to the handling of the products of the dairy. The cows should be fed twice a day on eaten chaff, bran, and a ration of green fodder. The dairyman should always rear the calves from the best butter-producing cows, equal care being exercised in the selection of the bull and heifer calves. The fact that "like begets like" should always be borne in mind by the dairyman who wished to improve the standard of his herd.

#### YACKA.

May 31st.—Present: 14 members and seven visitors.

**FARM BLACKSMITHING.**—In a paper on this subject, Mr. R. Tillbrook said that every farm should possess a blacksmith shop, but he thought it would be necessary to have at least two years' experience with a good tradesman in order to make blacksmithing profitable. It also took practice to know the heat required. It was surprising the amount of money the farmer paid to the blacksmith each year, whereas, if a man had a shop, he could save at least one-half that amount, as well as the time that was lost in going to and from the blacksmith. Wet days could be spent in making eyebolts, S hooks, and replacing broken links in chains, etc. Before erecting the shop, it would be necessary to find the best place, where there would be no danger of fire, and where one could get the implements close to the shop. He suggested constructing the building of stone; it would then be safe from fire, and would be cooler during the summer. Many farmers could use the stones off their own land, and if they did the work themselves, it would cost very little. The forge should be placed away from a corner, so that a long bar of iron could be placed through it. A vice and drilling machine would be required, and also a few pairs of tongs (to hold round or flat iron), hammers, chisels, punches, and a good set of stocks and dies for threading bolts. A set of shoeing tools, such as a hammer, rasp, pincers, nails of different sizes, and a supply of shoes would be necessary. A set of carpenter's tools, including a saw, plane, chisels of different sizes, brace and a few bits, and a carpenter's claw hammer, would also be handy. A few pounds expended in equipment would be saved in blacksmiths' accounts. It would be necessary to be able to tell steel from iron; one method was to place the end of the bar on the anvil, and hit it with the hammer. Iron would crack open at the end, but steel would not, because it had no grain, but would flatten out as would lead. In welding, it was necessary to get both irons to a soft white heat. A little clean red sand thrown over the top would help to keep them clean. Steel should not be made too hot, and a little clean sand, borax, or cherry red should be used. The iron should be well jumped up and scarfed, but not given too much lap. If the iron was round, the first few hits should square it, after that it could be worked round. When two pieces were being welded together, the thickness of the iron should be allowed on to the length. Chisels, picks, and bars could be tempered by first getting the steel hot; three-quarters of an inch should then be cooled off and the iron watched. The first color would be white, the next blue, and the next a straw color; when the straw color was coming to the edge the iron should be cooled right off. Buggy springs or tynes for a spring-tooth cultivator could be tempered without a furnace

by placing them in a fire and getting a red heat all over; they should then be dipped quickly into a tub of water. A fine piece of deal should then be secured and the end smashed soft. The springs should then be placed back in the fire and rubbed with the deal, and when hot enough to sparkle, should be dipped quickly into a tub of water. Care should be taken to keep the springs the same heat all over. A good discussion followed the reading of the paper. Mr. J. Atkinson said it was advisable for young men to take up the practice and do as much as they could for themselves in their own shop. Mr. Billinghurst said that every farmer should possess a shop, and much time would then be saved. The Secretary (Mr. A. O. Badman) thought it was necessary for every farmer to get an insight into blacksmithing, but he did not think any farmer would be able to serve for two years at the trade.

BUNDALEER SPRINGS, June 25th.—Mr. E. Cooper read a paper, "Farm Stock," in which he pointed out the necessity for keeping pure-bred stock. The paper also dealt with inbreeding, and emphasised the fact that if such a line of breeding was adopted only strong and healthy animals should be used.

LAURA.—At the June meeting of the Laura Branch of the Agricultural Bureau a milk-testing demonstration with the Babcock tester was given by Mr. P. T. Bowker.

## LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

### BLACK SPRINGS.

May 29th.—Present: 16 members and one visitor.

STRAW ON THE FARM.—Mr. H. Gilbert contributed a paper on this subject. Straw, he said, should be gathered as soon after the harvest as possible, so that it would be in good condition. Oat and barley straw, if cut as soon as the grain had been stripped, would be in excellent condition for stacking. If stacks were built with care, they would last for many years, and might prove of some value in a dry year when fodder was scarce. If a small amount of straw were chaffed and mixed with the hay chaff, the latter would go further. Barley and oat straw were preferred to wheaten straw on account of the knots in the stalks, which might prove injurious to the stock if used in large quantities. Wheat straw was used mostly for covering stacks of hay, sheds, and also for shelters and bedding for stock. Most of the paddocks, he said, should have a straw stack in them. On every farm there would generally be found a small area of waste ground, caused by a reef of rocks or by a creek, which, if built on, would result in no inconvenience, nor would it spoil the working of the paddock. Each stack should be surrounded by rails, so that the stock could not pull the straw out or trample it down quickly. The stacks should contain at least seven or eight loads, so that they would provide a shelter from the wind. A straw roof of a shed to be waterproof should have a good slope. The straw should be placed on by commencing at the bottom and making each layer of straw thicker, until a thickness of 3ft. or 4ft. was reached at the top. Wires with weights on each end should then be hung at equal distances apart, say, from 2ft. to 3ft. Wire netting would be more suitable to use, because that would do away with the hollows in the roof caused by the plain wire. Where stock were being housed or fed, straw bedding should be laid down. If the straw was raked up and placed in the small gutters or washaways caused by heavy rains on the fallow or loose soil, the gutters would gradually silt up, and thereby increase the value of the land. It should not be forgotten, he said, that straw was a necessity on a farm where

the stock were concerned, if they were to have any comfort at all. Mr. C. M. Hudd then contributed a paper, entitled, "Methods of Increase for the Farmer." The farmer of to-day, he said, was faced with high rates and taxes, high-priced machinery, and other disadvantages, which compelled him to turn to methods of agriculture, which would bring him in the best results with the least expenditure. To do that the farmer should devote a fair portion of his time to side lines. To gain the best results from the land, one would need to work along the following lines:—Seeding should be started during the first week in May, providing enough rain had fallen previously to cause the weeds to germinate. The seed should be sown at the rate of 75lbs. to 85lbs. of wheat to the acre, with a dressing of not less than 1cwt. of super per acre. A greater quantity of super would give better results and leave the soil in better condition. An early wheat should be sown for hay on the heaviest soil. For grain, the bulk should be of varieties most suited to the district; but one should not be afraid to try new varieties in small quantities to test them thoroughly for at least three years. Twenty or 30 acres should be sown with oats or barley, either for hay or grain, and fed to the stock if the market price for them was not good. They could be sown before seeding commenced, and in no way would that hinder seeding operations. Fallowing should be commenced in July and finished by the middle of September in that district; the land should then be harrowed and cultivated immediately, commencing on the land that was ploughed first. The cultivating would then be finished by the second or third week in October. That would allow the farmer time to clear the stack yard, and be ready to start haymaking in the last week in October or the first week in November during a normal year. The hay should be cut a little on the green side for a start, and by the time cutting was finished it would have become ripier, and mixed in the stack it would make very good hay. The stooking should be done immediately behind the binder in round stooks of from 25 to 30 sheaves. That would ensure good hay, and it would not dry out to any great extent, and would be ready for carting in 10 days. The stacks should be large enough to hold 50 tons, and should be built with square corners. The centre should be kept well filled, especially when commencing the roof, which should be steep and with the huts outside; the birds and rain would then not damage the sheaves. The stack should be thatched immediately after harvest. Harvesting operations should be commenced as soon as the corn was ripe, always reaping first any wheats that were likely to shake out or go down. When the harvest was over, the farmer was able to cart and build a stack of straw for the winter, and as a standby in time of drought. Odd jobs could then be done, and if rain came during the summer the fallow should be harrowed. A cultivating would do a lot of good, but the harrows were a necessity on the fallow, because they made an even surface, and allowed the weeds to germinate more quickly. A flock of sheep should be kept on the farm, about 100 Merino ewes or Merino cross could be mated with Dorset Horn rams during the second week of November, the lambs would be dropped during the second and third week in April, which was quite early enough. Other sheep could not be compared with the Dorset Horn cross lamb for rapid growth, and for market or export. A flock of sheep would bring in a good income, and also keep the fallow free from weeds, and enrich the soil with their droppings. At least four Jersey cows should be kept. They would bring in at least £50 per year; they should be properly attended to, and given a sufficiency of good feed if they were to give the best returns. Some people were of the opinion that cows were a tie, but the farmer would not do without one, and one would be as much a tie as six. A breeding sow of the Berkshire breed should also be kept, and could be fed with the separated milk and a little corn. The young pigs could be sold as slips, or kept until they were baconers. The pigs should be kept in a little paddock or run, with access to a clean, dry sty. Pigs should always be kept clean, because they would thrive better and fatten on less food. A flock of about 50 White Leghorn fowls of a good laying strain should be kept, and also about 12 of a heavy breed, such as Plymouth Rocks or Black Orpingtons, for setters, because the pure Leghorn would not set, and it was not convenient for a farmer to keep an incubator, because it required too much attention. The fowls should be kept housed, or, if allowed to run out, should be kept away from the farm buildings and stables. Every farmer should have a few fruit trees and a vegetable garden. The latter was a necessity, and occupied very little time, and fresh vegetables would always repay for the little time spent on them.

SADDLEWORTH (Average annual attendance, 19,604n.).

June 22nd.—Present: 15 members.

**LUCERNE.**—In the course of an address dealing with the cultivation of lucerne, Mr. F. H. Kelly said the old practice of growing lucerne mixed with grain in order to improve the carrying capacity of the pasture was no longer recognised as a profitable venture. Lucerne required special cultivation before sowing the seed in order to insure a good start and a clean crop. He wished to make special reference to a piece of land that he had watered from the River Wakefield. The land comprised an area of about one acre, and was about 10ft. above the level of the river. The plot had been ploughed during August, and was worked continually through the spring, summer, and autumn, and following winter. Cultivations were also made when weeds made an appearance, and to insure a good seed bed. He expressed a preference for Hunter River seed, which he broadcasted with a grass seed attachment to the grain drill. The first crop was so badly damaged by the lucerne flea that it had to be re-seeded. It was noted that a better germination took place along the wheel tracks of the drill, so the whole of the plot was rolled after the second seeding, and a very good germination was received. Except for a very light grazing, he did not advise using the crop the first summer. During the autumn or early in the winter a heavy dressing of fresh stable manure should be harrowed into the land. He had not used any other form of fertiliser. The land was irrigated with the aid of a windmill pumping into a 3,000-gall. tank. The main pipe was placed down the centre of the plot, to which was attached 60ft. of a rubber hose and 24ft. of  $\frac{1}{2}$  in. gas piping. The piping was supported about 18 in. above the ground and at intervals of 18 in.  $\frac{1}{2}$  in. holes were drilled in the pipe. The water spouted out from the holes on to the ground, thus avoiding spraying the foliage, and even on a hot day the leaves of the plants were not scorched. The irrigated plot was cut every fortnight or three weeks. The cost during the whole of the summer had been half a gallon of oil for the windmill. When hay was required, the cut lucerne was spread in forkfuls over the floor of the hay shed, and if occasionally turned over could be cured into excellent hay. If allowed to wilt before feeding to dairy cows, any tainting of the milk would be avoided. Cows, pigs, and poultry had been fed from the plot, and Mr. Kelly considered lucerne an essential feed for poultry. The seed should be sown at a very shallow depth, and if a good growth was to be obtained thorough cultivation should be practised. In the discussion that followed, Mr. G. Winkler favored deeper seeding than that mentioned in the address, and thought irrigation should be deferred until five-eighths of the crop was in bloom. The water from the Gilbert River, although unsuitable for vegetables except tomatoes, seemed to be all right for lucerne.

## WILLIAMSTOWN.

May 25th.—Present: 23 members.

**SEEDLESS APPLES.**—Mr. A. Norsworthy tabled six seedless Cleopatra apples. A long discussion ensued, and the opinion of the majority of members was that seedless apples would probably be caused by the tree bearing fruit out of season, or through late flowering. A discussion also took place dealing with black spot of the vine and the best methods for combating the disease.

**CLARE, May 25th.**—An interesting address, "Operations for the Coming Winter Season," was delivered by Mr. R. E. Hunter. Points touched on were the care, planting, and protection of young trees from rabbits and hares, spraying, manuring, and general repairs to the vineyard and its appliances during the wet season.

**MALLALA, May 21st.**—Lieutenant-Colonel D. W. Ramsay Smith, M.D., D.Sc., F.R.S. (Edin.) (Head of the Department of Public Health, S.A.), attended the meeting and delivered an address, "Farm Sanitation."

**WATERVALE, May 28th.**—The possibilities of cottongrowing were discussed at length, and Mr. Reid signified his willingness to conduct experiments. He thought it would suit the gardener, because his busiest time was over when the cotton harvest began.

**WILLIAMSTOWN, June 26th.**—Mr. J. B. Harria (District Orchard Instructor and Inspector) attended the meeting, and delivered an address, "Vine Pests and Diseases." A pruning demonstration was given in Mr. W. C. Smith's vineyard, when the Messrs. A. Springbett explained the most profitable methods of pruning.

## YORKE PENINSULA DISTRICT.

(TO BUTE.)

### BRENTWOOD.

May 5th.—Present: 18 members and 30 visitors.

Mr. H. G. Tossell, M.P., delivered an address, in which he gave an interesting description of agricultural methods practised in various parts of Europe and America.

**QUESTION BOX.**—A further meeting, which took the form of a "Question Box," was held on May 31st. In replying to the question, "Does it make any difference to the resulting crop if the seeding is done with a combined drill and cultivator or separate implements," Mr. Carmichael said he had not noticed any difference. The combine acted splendidly while the weeds were small, but separate implements were best when the rubbish had made a strong growth. Mr. C. H. Boundy had used the combine for hundreds of acres, but maintained that the farmer had to use his own discretion as to when it should be used if the best results were to be secured. He agreed with the previous speaker in regard to weeds, and concurred that under fair conditions the combine gave every satisfaction. He considered it imperative to have separate implements to deal with large weeds. Mr. J. J. Honner said that some farmers used ploughs that left the fallow too ridgy, with the result that the combine was liable to bury the seed too deeply. Under fair and level conditions he was satisfied that the combined implements gave satisfactory results. "Would it damage a crop to harrow it after it had come above the ground?"—Various cases were cited, and it was generally agreed that good rather than harm would result, allowing that the crop was not too far advanced. "Does the quantity of super used have a good or harmful effect on crops in dry seasons?"—Mr. J. J. Honner thought that on stony or "red soil" too much super did have an adverse effect. He cited a case of partial failure last year, which he attributed to too much super, and intended reducing the quantity this year, on that class of soil, from 112lbs. to 80lbs. Mr. J. Boundy considered the only means of judging the question was by the conducting of a series of experiments extending over a number of years. Mr. C. H. Boundy was satisfied that a fairly heavy dressing of super assisted a crop, especially wheat, to withstand a dry season. He quoted a case last year in which a wheat crop on the notorious "red land" of the district held its own, and yielded satisfactorily, although manured well above the average. "Are there any means of eradicating weevil from barns?"—Members were agreed that the pest was a hard one to cope with, and replastering, whitewashing, and spraying with sheep dip were quoted as possible remedies. Messrs. J. Boundy and A. E. Twartz both cited cases in which weevil had either been exterminated or removed by covering the floors of the barns with a good layer of salt. "Which is the more effective for pickling grain—bluestone or formalin?"—In connection with this question no attempt was made to compare the two, both being generally admitted as effective; bluestone was more generally used, but formalin was also being used in several parts of the district. Mr. J. Boundy said it was not advisable to pickle too far ahead of sowing with formalin. This introduced a dis-

cussion on when to pickle with bluestone. Mr. J. J. Honner had tried barley which had been pickled a month or so before sowing, but found that the germination was badly affected. Mr. C. H. Boundy, however, contended that he had found that pickling smutty barley well ahead of sowing to be very effective. Mr. A. L. Vanstone had not found pickling well in advance interfere with the germinating qualities of the grain to any appreciable extent. "What is the best plan to prevent drift?"—Mr. Carmichael voiced the opinion of the majority when he advocated leaving the fallow as rough as possible as a help in that direction. "Is it advisable to cut the tails of Merino lambs as close to the rump as possible?"—Mr. Honner said he was experimenting in that direction to see whether it would lessen the trouble caused by blowflies. "Is it advisable to burn stubble before fallowing?"—Members agreed with Mr. Carmichael that barley straw broke up easily, especially if harrowed on a hot day, whereas wheaten straw did not. The Hon. Secretary (Mr. G. L. Tucker) uttered a note of warning in regard to the destruction of humus by continuous burning off, and quoted some of the evils of so doing. In their district, where the rotation was usually wheat followed by barley, he considered it best to burn the wheat stubble, and plough the barley straw into the soil. "What is a good gauge for a wire fence?"—Mr. Honner suggested 6in., 5in., 5in., 6in., 8in., 9in., upwards to 39in.; Mr. Carmichael gave 6in., 6in., 6in., 7in., 8in., 10in., upwards to 43in.; Mr. J. Boundy thought 6in., 5½in., 5½in., 6in., 7in., 11in., upwards to 41in.

#### WEAVERS.

April 30th.—Present: six members and three visitors.

HOW TO MAKE FARM LIFE ATTRACTIVE.—Mr. G. Anderson, who read a paper on this subject, thought the most important feature about making farm life attractive was to keep things in good order about the homestead. A good approach from the road to the homestead should be constructed, and trees planted along the sides to make a drive. If that were not possible, two or three trees should be planted at the main gate; they would then help one to find the gate easily on a dark night. The farmhouse should be made attractive and tidy, tools should be kept in their proper place, and implements not allowed to stand about under trees. Everything, he said, should be kept in its proper place. He advised farmers to have a lucerne patch or vegetable garden to tend as a hobby, and that would also help to make the homestead look more attractive. The stable and the fences should be kept in good repair. He suggested the construction of a light metal floor in the most frequented part of the stable yard. One portion of the stable should be partitioned off for a harness room, and all the leather should be given two or three coats of oil each year to keep it soft and pliable. All the draught horses should be of the same even stamp, only the best animals being kept, even though one had to pay a little more for them. The fowlhouse, cowshed, blacksmith shop, machine shed, and all the fences should also be kept in good repair.

#### WESTERN DISTRICT.

##### CARROW.

May 26th.—Present: eight members and nine visitors.

DESTRUCTION OF FOXES.—Mr. T. Burt contributed a paper on this subject. It was necessary to be very cunning, he said, to achieve satisfactory results in the destruction of foxes. The baits should on no account be touched with bare hands. To draw a fox up to the traps or rifle he said there was nothing to equal the chemical extracted from the root of the valerian plant, which was very often used in medicines for sheep, horses, and cattle. It possessed a remarkable attraction for the fox, and a few drops on a piece of rag drawn along a trail would be a

sure lure. If a dog fox crossed the trail it would invariably follow it during either night or day, but only on a moonlight night would there be much chance of shooting the animal. If the trail was laid with the wind the fox could be drawn on as one pleased, right across the band of moonlight, but it should always be borne in mind that, however much the fox was absorbed in the valerian trail, his nose was always on the *qui vive*, therefore shooting parties should always be on the leeward side of the trail. A poison trail could be laid successfully with the roasted head of a sheep or pluck, or the half of a skinned and roasted rabbit. Anything of that nature would serve very well during the early part of the night, when the fox was on the lookout for a meal. In preparing a bait of that kind, the lower part of the attachment should be made of fine wire, so that when the drag had been made ready it could be given the necessary scorching in the fire to remove every trace of the scent of the hand. The expert trapper wore rabbit skin mittens and rabbit skin covers for his boots. Gloves which were used much should be washed frequently, otherwise they would soon give off almost as much warning scent as the bare hand. Cyanide or strychnine poisoned baits should be used with the greatest caution. The baits should be buried a few inches deep at intervals along the trail; a hand fork, hoe, or any such implement should be used, but on no account should the ground be touched with the hand or foot. He advised burying a number of baits at intervals to delay the fox while he smelt about for them, and to give the poison time to work, otherwise the fox might go off to one side and die some distance from the trail, in which case the skin would probably be lost. The skin of a fox that had been dead for a day or two was useless, because the fur came out too easily. If a fox was poisoned during the night, the skin should always be removed early the next morning. Starlings made very good fox baits, but in laying them, a pair of tongs should always be used; these could be made from band iron, such as was used on bundles of bags. Before use, the tongs should be passed through a flame to remove any trace of human scent. During the discussion which followed, Mr. C. G. Puckridge thought handling the baits did not warn the foxes off, because he handled a sheep freely and poisoned it, securing seven foxes the next morning. Mr. T. Burt had obtained better results in handling baits with a pair of tongs made from band iron, securing seven foxes from half a chicken. Sparrows also were an excellent bait. He thought strychnine was the best and most effective poison to use.

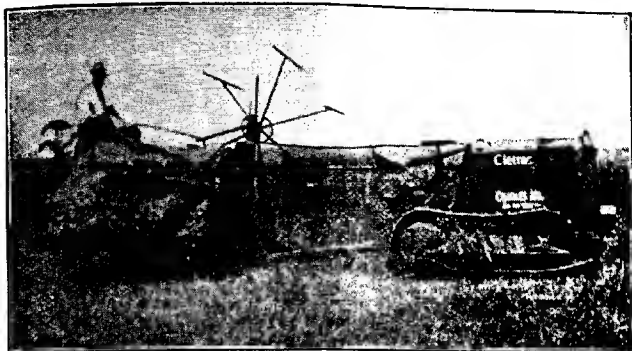
#### DARKE'S PEAK.

May 23rd.—Present: 10 members and two visitors.

**SHEEP ON THE FARM.**—"Before a farmer goes in for sheep he should first see that there is a good supply of water available, and that the property is enclosed with good sheep-proof fences," said Mr. J. B. Davis in a paper under the heading, "The Value of Sheep on the Farm." Continuing, the speaker considered the Merino to be the best breed of sheep for the farmer, and to maintain the standard of the flock the rams should be changed every three years. Sheep were a valuable asset to the farmer. They kept the weeds in check, and helped to kill the mallee shoots, and by grazing on the fallow they packed the soil and enriched it with their droppings. When the freezing works were thoroughly established at Port Lincoln, farmers would be able to establish flocks of cross-breeds, and thereby obtain heavier lambs for the market. For that purpose he favored the Lincoln-Merino cross. Trees should be planted in corners of the paddocks to provide a shelter for the stock. In the discussion that followed, Mr. W. Wake expressed a preference for the Dorset Horn-Merino cross, and advised farmers to plant the trees some distance out from the fences, otherwise the sheep, when camping under the trees, would do considerable damage to the fence. Mr. C. A. Noble thought farmers should make provision to hand-feed the sheep with crushed oats when natural feed was scarce. He considered that shelters for the trees should be made in the centre of the paddocks, and favored the Romney Marsh-Lincoln cross. Mr. G. Noble stressed the importance of water and fodder conservation. In reply to a question, Mr. Davis said each ram should be limited to about 40 or 50 ewes.

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**KOPPIO** (Average annual rainfall, 23.40in.).

May 29th.—Present: five members.

**THE VALUE OF LUCERNE.**—The Hon. Secretary (Mr. T. R. Gardner), in the course of a short address dealing with the subject, mentioned that on September 21st, 1922, he sowed 4½ acres of fallowed land with 9lbs. of Hunter River lucerne. The past spring and summer months had been very severe on summer fodder crops, and less than the average winter rains had fallen during the past two years. Although the crop was young, it had been fed off twice during the summer—150 sheep for 10 days, and two months later it had carried the same stock for seven days. In April, 1923, the crop appeared to wither off, and looked as though it would not recover, but immediately after the first rain fell it had sprouted vigorously, and was now showing a good body of feed. The cost of seed and super had been about £2 per acre. Mr. J. Newell read an article, "Manuring Fruit Trees," and an interesting discussion followed.

**LIPSON.**

April 28th.—Present: 17 members.

**TREE PLANTING.**—Mr. C. Partington contributed a short paper on this subject. He said tree planting should receive attention from every landholder, first because good timber trees enhanced the value and appearance of the holding, and secondly because timber was becoming scarce in that district, and in years to come would only be available by carting from long distances. Almost any variety of tree could be obtained from the local forest reserve, but very little advantage had been taken of that in the past. He suggested that every farmer should plant one or two acres every year for, say, six or seven years. At the end of that time, the timber would have made a good growth, and at the end of 10 years some of the trees that had been first planted should be fit to use on the farm. The site for the plantation should be where it would receive the floodwaters, such as in the line of a watercourse. The most suitable trees to plant were the sugar and red gum, both of which were well known for strength and durability, and could not be surpassed for fencing posts. He mentioned those varieties because he had noticed that they both did well in that locality. There were a number of other varieties that might do as well, but if planted for timber purposes, he doubted if they would be better than the sugar and red gum. He thought it would be an excellent plan for the Agricultural Bureau to organise a planting scheme, and induce farmers to plant a number of trees on their holdings, and also to plant rows of trees along the boundary fences adjoining the district roads. That would greatly improve the district from a picturesque point of view, besides being a valuable asset to the farmers. An instructive discussion followed the reading of the paper.

**MOUNT HOPE.**

May 26th.—Present: six members.

**HAND-FEEDING SHEEP.**—The following paper, under the heading, "Does it Pay to Hand-feed Sheep?" was read by Mr. H. Doudle:—"The practice of hand-feeding sheep on the West Coast is not generally adopted, and whilst admitting that it would be impracticable for the pastoralist who has large areas of grazing land, it does not follow that hand-feeding should not be practised by farmers. It is the usual custom for the farmer to pick out what sheep he is going to sell at shearing time, and as he is generally anxious to find a buyer as soon as possible, the result is that 90 per cent. of the farmers sell their sheep at a low figure. In such circumstances the farmer gives as a reason the fact that the land would be overstocked if he attempted to keep the sheep through the season. The natural grasses contain little or no nutriment when they first make an appearance, and even if paddocks are kept ungrazed until the autumn months, and there is an abundance of dry feed, sheep will gradually fall off in condition when grazing on such pasture. This goes to show that the dry grass is of little feeding value. Therefore, instead of the farmer selling his sheep in the spring, it would

be a much better proposition to allow the sheep to have the run of the paddocks and eat them out while the grass retained some feeding quality. Then, when the feed in the paddocks commenced to show signs of scarcity, he should turn his attention to hand-feeding. The time to commence feeding will depend on the condition of the flock, but it would not be necessary to start feeding the whole flock at once. When the farmer notices that the sheep are getting short of feed, the flock should be yarded, the weaker or poorer sheep picked out, and put in the feeding paddock. This course should be adopted once a week, until such time as the farmer decided that the whole flock required feeding. The lambing ewes should be fed in one paddock, the dry sheep in another, and the sheep for market and ration sheep in another. Feeding troughs can be made with super bags, by sewing them together double, and putting three posts at each end of the feeder firmly in the ground. Then weave a piece of No. 8 fencing wire through the edge of the bags on each side, and strain the wire tightly to the post at each end. A third wire should be threaded through the bottom of the feeder, and also strained to keep it from flapping in the wind. Feeders can also be made of galvanized iron and wood. These are perhaps the best, because they can easily be moved from one paddock to another. A few small pens should also be provided for feeding some of the weaker ewes and lambs. Two pounds of good hay chaff per day will be sufficient to maintain the strength of a sheep, and 1lb. of oats per day will keep a sheep in good condition. 'Cocky' chaff can be fed by mixing with oats, barley, or hay chaff. Where 'cocky' chaff is fed to sheep, the straw and flag should be separated from the finer chaff with a sieve, because the sheep will only eat the fine chaff, while the rough stuff could be fed to the cattle. By a system of hand-feeding, the farmer could fatten and sell his surplus sheep when the market was high, and according to the way the market has been in past years, a sheep that would bring 15s. at the end of the year, would, if fat, bring from 40s. to 50s. in the winter. One bag of oats at 1½lbs. per day ration, would feed and fatten a sheep for 80 days. Value the bag of oats at 10s., and allowing for the trouble of feeding, &c., it would then show a substantial profit over a neighbor who had sold 'off shears.' Again, there is the advantage of having the paddocks cleared of weeds. With the coming of the freezing works at Port Lincoln, and the high prices of wool and meat, I think that the farmers in this district would be well advised to pay more attention to the raising and feeding of sheep. Grow more oats and barley, &c., even at the sacrifice of some of the wheat area, and when a stubble paddock is to be left out, it would pay to run a drill over it at the end of the summer and sow oats, barley, rape, or, better still, a mixture of the three, with a dressing of, say, 50lbs. of super. It would come along quickly with the first rains, and provide an excellent pasture for ewes and lambs. I advise farmers that intend to hand-feed their stock to buy some books written by experts on the subject, in order to know what fodders to feed to obtain a properly balanced ration." In the discussion that followed, Mr. T. Speed thought the hand-feeding of sheep very necessary, and the farmers in the district had not given it sufficient attention. He agreed that the hand-feeding system was instrumental in killing out the stinkwort, and at the same time it enriched the soil. He was of the opinion that it would pay handsomely to hand-feed. Mr. V. Wiadrowski had had no experience in hand-feeding, but was of the opinion that regularity in feeding would go a long way towards keeping the animals in good condition. He thought it would be a good plan in districts where strippers were used to feed the "cocky" chaff mixed with grain to the sheep. Messrs. H. H. and H. F. Myers also spoke in support of hand-feeding.

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PETINA (Average annual rainfall, 13.19in.).

May 19th.—Present: 12 members and three visitors.

Mr. H. H. Howard initiated a discussion on the blowfly pest on sheep. The chairman (Mr. W. Penna) stated that where the blowfly pest was prevalent in New South Wales, a station owner had killed a sheep, cut it into pieces, poisoned it with arsenic, and placed the pieces on different parts of the run, with very satisfactory results. Mr. W. E. Stone asked what was best to use on a fly-blown

sheep. Kerosine, turpentine mixed with oil, or eucalyptus were recommended. Mr. Stone had recently been told that petrol was the most effective. Mr. H. H. Howard initiated a discussion of fallow, and the great advantages to be derived from fallowing. He dealt with both the theoretical and practical side of the question.

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#### ROBERTS AND VERRAN.

May 24th.—Present: nine members.

WASTE ON THE FARM.—Mr. C. Masters, in the course of a paper on this subject, said he meant the term waste to apply to any old animal, machine, or implement that was not returning value for the money incurred in maintenance. A horse that was slow and old, or a lazy worker, should be disposed of, because, as a rule, it would take more fodder to feed a horse of that kind than it would to feed a young horse and a willing worker. He considered it was a mistake for a farmer to sell the young horses when offered a good price if there were older horses for sale. The dairy herd should be tested, and any cow that was not giving a good percentage of butter fat should be fattened and sent to market. Close attention should also be given to the farm flock. Sheep with loose wool and other defects frequently appeared, and these animals should be culled out and sent to the butcher. Old implements that were worn and out of date were another source of waste on the farm. The farmer not only wasted his time repairing them, but the money that was spent in repairing them would often pay the price of a new implement. It was important that the cream separator should be watched, because if it was worked with worn-out parts a considerable amount of cream would be wasted. Grain that had been spilt on the barn floor could be fed to the pigs. He also thought it was the farmer's duty to make an effort to keep all vermin and noxious weeds in check. During the discussion which followed Mr. H. Simmons said that old implements were the cause of a great deal of lost time, and they did not do a satisfactory job. Old horses were also the cause of much time and feed being wasted. Mr. A. T. Cowley said waste of time should be avoided, and sheep and cows that were not returning a good profit should be culled out. In regard to implements, he did not think it was a payable proposition, with the high prices now ruling, to buy new implements, so long as the old ones could be made to do the work satisfactorily. Mr. S. Simmons said it often paid to obtain implements of similar make to the old ones, so that the farmer would be able to use spare parts from the old machines. Mr. C. Simmons pointed out that an animal that was a poor "doer" consumed as much feed as a first class animal, but it could not be used at a profit. Old horses that had done good service should be destroyed if feed could not be provided for them. He thought more care should be taken with repairs than was usually the case. Too often, he said, wire was substituted for bolts, &c. Mr. B. Evans thought old and out-of-date implements caused much loss of time, and should be replaced with larger time-saving machinery. Mr. H. Lewis said machinery should be kept in good working order; generous lubrication meant economy because it minimised wear and tear. Mr. H. Masters thought horses should be disposed of when they reached seven or eight years of age. The loss of time and the cost of repairs to old implements made them more expensive than it would be to replace them with new ones. That, however, largely depended upon the farmer's financial position.

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#### TALIA.

May 19th.—Present: eight members and two visitors.

CARE OF THE WINDMILL.—Mr. P. A. Thomson, in the course of a short paper on this subject, said that in erecting a windmill, care should be taken to see that it was placed perfectly level and true with the pump rod. All bolts and nuts should be kept screwed up tightly. When oiling the mill, a sharp look-out should be kept for loose nuts. Locknuts should always be used. Wherever possible, oil

caps should be cleaned out occasionally, to see that the oil or grease was lubricating the bearings. A lot of oil could be wasted by overfeeding. A good grade of oil should be used. Many people who had motor cars used the drained-off oil from the crank cases of the motor for the windmill; but his experience with that oil was, 'If you value the bearings of your mill, think twice before you use burnt-out oil, for in the long run it will prove very expensive.' Farmers frequently found their mill wheel too small in power. When average winds prevailed, that could be overcome to a great extent. It was not necessary to go to the expense and work of increasing the size of the mill wheel. The size of the pump should be ascertained, and if a 3in. pump was being worked on a 1½in. pipe, the pump could be reduced to a 2½in., with modern valves. Another important point about a steel mill that required attention after a few years was the anchor posts. They would in all probability stand well in some ground, whilst in other soils they would rust away very rapidly. To overcome that, it was a good plan, after the mill was erected, or when it was found to be rusting, to take out the soil around the posts and fill in to about a foot above the ground with cement concrete. When a pump showed signs of going out of order, the plunger leathers should be renewed, and the life of both the mill and the pump would be prolonged.

#### WIRRULA.

May 26th.—Present: 12 members and four visitors.

**WATER CONSERVATION ON THE FARM.**—Mr. H. Doley contributed a paper on this subject. Water conservation, he said, should be one of the most important matters for consideration when starting farming operations on an out-back or pioneer farm in the dry areas. In many cases it was one of the most neglected matters, and resulted in great trouble and loss of time at a later date. It was better for a new settler to put in less, or practically no crop, during the first year, and make provision for water storage before too many stock were placed on the holding. Water should be obtained first, and stock afterwards, and as the water-holding capacity increased, so could the number of stock be increased accordingly. One frequently found a large number of stock on a farm, but very little provision made for water catchment. He thought that if every farmer made provision for storing 50,000galls. of water, there would not be the trouble there was to-day. Even during a dry year there was sufficient water running to fill tanks of that capacity. If they were to adopt the plan of putting down a new tank each year, until a two years' supply could be stored, there would be no water famine. The tendency too often, he said, was to depend on the Government tanks; he thought the policy of the Government in erecting large tanks in different places was not a wise one in some ways, because the settlers would not make the provision that they should. He thought a wiser plan would be for the Government to assist each settler, either by having underground tanks placed on the holdings, or by finding the necessary materials for the settlers to do so, and making some allowance for him if the work was done satisfactorily. He thought the Government could come to the assistance of the settler by finding galvanized iron to be erected on the holding under some system such as the Act for procuring wire netting, wire, &c. One large shed would provide sufficient water for a start, and then, as soon as possible, underground tanks could be built. It would be some time before water runs could be made, therefore the number of stock would have to be limited for a while. He also thought the Government could be of great assistance to the settlers by boring for water or sinking wells, or assisting the settlers to do so. Farmers in that district had to depend on the ground to give the best water catchment, and for that purpose a hollow of firm, red soil should be chosen; a long and steep run was preferable, but a sandy site should not be chosen. He preferred tanks built in different parts of the holding, because in that district sometimes a heavy shower would fall in one part of the holding, with none in the other portion. He favored small tanks of 15,000galls. to 25,000galls. capacity in preference to large ones. Concrete tanks with sloping sides gave the best results, and were much cheaper to build than mason-work stone tanks. The latter, if well built and well cemented, were better and stronger, but they were more expensive and took longer to erect. That country did not

appear to be suitable for dams, except for small and shallow ones in the hard, red flat land. Another matter that was neglected was carting water off the roads. Large sheets of water were often seen lying in the hollows, yet it was allowed to go to waste when storage room could be found in the tanks for some of it. He thought many farmers trusted too much to the elements, and then were often compelled to cart water for miles, thereby losing valuable time. He thought if the matter of tanks and tank building could be run on something the same lines as machinery, by sending around agents to point out the advantages of the different methods, and showing the actual cost in time and money, there would be more tanks erected. A good discussion followed the reading of the paper, in the course of which the writer answered a number of questions.

BUTLER, May 28th.—Addresses dealing with the subject, "Lahor-saving Devices on the Farm," were given by Messrs. C. F. Jericho and N. G. Stewart, and an interesting discussion followed.

COLLIE, May 26th.—Mr. A. P. Rowen read a paper entitled "Work and Conditions of Indians," which was well discussed by those present.

ELBOW HILL, May 29th.—The meeting took the form of a "Question Box," when several subjects relating to ailments of stock were brought forward for discussion. In reply to a question as to whether it was best to feed horses with long hay or chaff, members generally agreed that long hay was most suitable, because the horses were compelled to thoroughly masticate that form of fodder.

McLACHLAN, June 2nd.—The meeting took the form of a "Question Box," when a number of subjects of local interest were brought forward for discussion.

## EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES.)

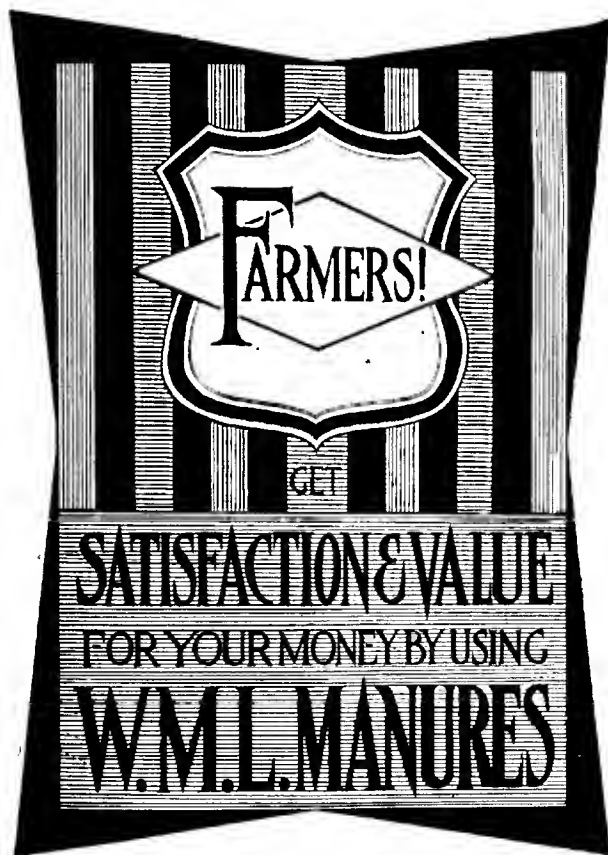
### BRINKLEY.

May 5th.—Present: 13 members.

Mr. H. Martin read an extract from the *Journal of Agriculture*, "Tractor v. Horses," and an interesting discussion followed.

INCREASED PRODUCTION.—A further meeting was held on May 26th, when a paper dealing with the above subject was contributed by Mr. E. W. Pearson, in which it was stated that it should be the aim of the man on the land to secure maximum returns from every acre of land placed under cultivation. Every farmer was aware of the high cost of implements, machinery, cornsacks, &c., so that it was necessary to consider what it cost per acre to produce a crop of wheat, other grain, or hay. He considered that a fair estimate would be that it cost about 25s. per acre to produce a crop of wheat on fallowed land, or that it required 5bush. of wheat to pay working expenses. To arrive at that amount, he cited the following estimates:—Ploughing, 4s. per acre; harrowing twice, at 1s. per acre, 2s.; reaping, 3s.; seed, 5s.; super, at the rate of 1cwt., 5s. per acre—total, £1 4s. 6d.; but that amount would not cover the whole cost of production. To that should be added the expense of cleaning, bagging, and carting, the cost of which would be governed by results. Assuming that the average yield per acre in that district was 10bush., the question that had to be considered was whether they could carry on farming operations profitably. All would agree that that was not possible, so that it would be necessary to consider what methods could be adopted to increase production. He did not advocate putting a larger area under crop each year, but rather an improvement in the methods of cultivation, the application of heavier dressings of superphosphate, and the selection

of the best seed which had proved suitable to the district. If those points were attended to, it should be possible to considerably increase the average yield. There were other ways which would help very materially in that direction. Those were often referred to as side lines, the principal of which he considered to be the keeping of sheep. Apart from the income derived annually from the sale of wool and lambs, it was a well-known fact that sheep added very considerably to the fertility of the soil, besides destroying various kinds of weeds that other stock would not eat. Increased production to the farmer also meant increasing the stock-carrying capacity of the farm. To do that it was necessary to have the farm fenced and subdivided into paddocks of a convenient size. Fencing was an expensive item, but it was also an item which should pay for itself very quickly. It was impossible to carry any class of stock profitably where they were allowed



the whole range of the farm at once, or such portions of it that was not under crop. Another matter worthy of more consideration was the manuring of grass lands. In various parts of the State it had been demonstrated that the stock-carrying capacity had been raised in some cases by 50 per cent. by the application of fertilisers to grazing land. Artificial manures were being used very extensively in that direction, and stable manure, the value of which was not fully realised, should be applied as a top dressing to grass lands. Too often it was regarded as a nuisance to be disposed of in the easiest possible manner, whereas if it was carefully conserved and applied to a few acres of land each year, the result would be noticeable for several years. It was necessary also to bear in mind that prices for farm products and livestock during the past few years had been comparatively high, and if in the future lower prices had to be accepted for farm products, the farmer would find that only by increased production would he be able to continue to work his farm at a profit. In the discussion that followed, Mr. J. Schenseher thought that the writer had not allowed sufficient for cultivation at 1s. 6d. per acre. He was also in favor of sowing more super with the crop, in preference to drilling manure on grass lands.

#### HALIDON.

May 30th.—Present: 10 members and visitors.

Pigs.—“Owing to the limited demand in Australia for bacon, the pig has not yet attained that importance which it deserves on the farm,” said Mr. C. H. Russell in a paper under the above title. It was not improbable that the pig industry would prove as important a factor in the development of Australia as it had in America. In addition to being able to turn the waste products of the farm to profit, the pig also readily responded to the systematic feeding of grain, returning greater dividends than if the grain had been marketed in the ordinary manner. The Director of Agriculture (Professor Arthur J. Perkins) had demonstrated in careful tests that at times it was possible to more than double the market price for barley by feeding it to pigs. It was important, however, that the farmer should give some little attention to the breeding of pigs. It took from three to six months longer to prepare a nondescript animal for market than it did a well-bred pig. From such a statement he did not wish it to be assumed that every farmer should endeavor to raise pedigreed stock, but he should select a good-grade sow showing, if possible, the following points:—“Back slightly arched rather than sunken, narrow across the shoulders with a long neck, roomy, with well let down hams, short legs, and 12 to 14 teats spaced at equal distances.” Such a sow should be mated with the best boar available. The importance of an approved pedigreed sire could not be over-estimated, for it was not uncommon to see a boar of doubtful breeding equal in appearance to the pedigreed animal; but the boar that lacked breeding would not be able to transmit those desirable qualities which should be the aim of every pig breeder. Regarding the best breed, Mr. Russell considered the best plan was for the farmer to choose the breed for which he had a particular liking; personally, he favored the Berkshire for their district. It was a very hardy breed and docile, it could be readily fattened, and did not scald so easily as some of the other breeds. Young sows should not be mated under the age of 10 months, and at the time of farrowing the sow would require some little attention. A warm and well-ventilated sty should be provided, into which the young sow should be placed about a week before she was expected to farrow. A rail 9in. high and projecting 1ft. from the wall should be placed in the sty, so that the young pigs could get out of the way of the mother when she wanted to lie down. It was a good plan to handle the sow as much as possible, so that the young pigs could be attended to if necessary at the time of birth. Very often the membrane surrounding the newly born pig adhered to its face, and no time should be lost in removing it to prevent suffocation. Whilst being confined to the sty the sow should not be given too much grain. If slop food and green fodder were provided it would often be the means of preventing the sow from eating her young. It was not uncommon for a runt or two to be included in the litter. These should be destroyed, because it was false economy to rear them, and so deprive the better

pigs of milk. Whilst the sow was rearing the litter she should be well fed, and at the age of three weeks the young pigs should be castrated. Mr. Russell considered it a mistake to leave the operation of castrating until the pigs were weaned, because the double operations of being weaned and castrated were often responsible for irreparable harm to the young animals. At the weaning stage it was important that the pigs should receive frequent meals of good food, preferably pollard and milk, with a little green feed and crushed oats. The pigs should be provided with some means of obtaining exercise as soon as possible. A good plan when the weaners were running with older pigs was to enclose the yard with a gateway, across which should be placed a moveable rail, which could be lowered or raised in order to allow the young pigs to enter, but not the larger pigs. There was no doubt that the most economical method of feeding pigs was grazing, supplemented with grain. Pigs would thrive on a plot of barley, therefore it was advisable to have the sows farrow in May and November, so that the growing pigs would only require hand-feeding for the shortest possible period.

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#### MARAMA.

May 28th.—Present: 12 members and one visitor.

Mr. T. H. Glasston delivered a short address embracing the handling of stumps and livestock kept on the farm. Stumps, he said, were the chief side line in that part of the country, especially from a financial point of view. He favored Hereford cows as the best all-round cows for the farm. Two or three sows with good litters were also a paying proposition. In regard to fowls, he favored the Black Orpington. Farmers should put in 10 acres or 12 acres of Cape barley for feed. Cocky chaff could be fed to the cows, barley to the pigs, and the screenings to the poultry. A general discussion followed, during the course of which the President compared the old-time system of dairying with the present-day system. Mr. W. S. Gray favored the Milking Shorthorn for the farm. Mr. E. C. Tilley said that unless a farmer had a family of girls, too many side lines would occupy too much of the farmer's valuable time, and the land was apt to be neglected; but he thought that a vegetable garden should be included in the list. Mr. Glasston was asked if barley was a better food for pigs than wheat, and replied that he favored barley, because as a rule better returns were secured from barley than from wheat.

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#### MARAMA.

June 25th.—Present: 14 members.

**SHEEP ON THE MALLEE BLOCK.**—Mr. J. Churches, who contributed a paper on this subject, said he believed every farmer in new mallee areas looked forward to the day when he would be able to run a flock of sheep on his block. The first point that he would have to consider would be the best class of sheep for his holding. Mr. Churches suggested the purchase of Merino ewes, as well bred as funds would allow. If young ewes could be bought they would, of course, be the best; but if these could not be obtained, aged sheep would have to be obtained. The Merino he considered to be the best all-round sheep for the farmer. The breed realised the highest price for wool, produced excellent mutton, and, as individual sheep, the Merinos were not such bad "fencers" as some of the other breeds. The selection of a ram was a most important point, and he advised the farmer to secure a good sire. In addition to providing the household with fresh meat, the sheep assisted in keeping the fallow clean during the summer months, when the farmer was not able to work the land. They also packed the soil and increased its fertility. If the farmer was able to erect sheep-proof fences, no difficulty would be experienced in handling the flock; but if such fences were beyond the means of the settler, he should make a yard, shepherd the sheep during the day, and yard them at night. If the farmer could afford to make one paddock sheep-proof, he advised fencing the paddock that was to be



fallowed, because the sheep could be kept in that paddock right through the summer, and when the land was put under crop, the sheep could be run on the crop, and taken off whenever it was desirable. He strongly advised the blocker not to purchase more sheep than could be carried without overstocking the holding, and the novice with sheep should seek the advice of a competent flockmaster before buying the stock. If the settler had a one-ram flock, i.e., 150 ewes, he advised permitting the ram to run with the ewes during the whole of the year, especially if there was plenty of feed and water available. If the farmer decided not to run the ram with the ewes, Mr. Churches advised mating the ram late in November or early in December, so that the lambs would be dropped in May, and thereby receive the most benefit from the early green feed. If foxes were troublesome during the lambing time, even though the paddocks were provided with sheep-proof fences, it would be advisable to erect a yard and yard the sheep at night. Mr. Churches then replied to numerous questions. The speaker favored the Merino crossed with the Dorset Horn to produce lambs for the export trade, and advised members to treat sheep that had been struck by blowflies with phenyle or kerosine. A preference was expressed for northern-bred sheep. The writer of the paper did not think it necessary to change the ram every second year.

#### MONARTO SOUTH (Average annual rainfall, 14in. to 15in.).

May 26th.—Present: 12 members.

**CARE OF MACHINERY.**—In the course of a short paper dealing with this subject, Mr. E. Thomas said, in view of the many complaints that one frequently heard regarding the high price of farm implements, it was surprising that so few farmers displayed concern as to the proper care and maintenance of the machinery. One could not go into any of the rural areas without noticing ploughs, cultivators, &c., lying out in the paddocks where they had last been used. Harvesters, strippers, and other costly implements containing woodwork were as a rule placed under shelter, but in many instances the protection afforded was not sufficient to keep fowls and birds from roosting on the machines. In the discussion that followed, one member stated that where a farmer was compelled to expose the machinery to the weather, the implements should be regularly painted. Another member stated that fencing wire should never be used to take the place of bolts on any machine. After a machine had remained idle for some time, kerosine should be run through all the bearings to ensure a free passage for the oil.

#### PINNAROO (Average annual rainfall, 16.74in.).

May 25th.

**QUESTION BOX.**—The monthly meeting of the Branch took the form of a question box. **Country Veterinary Surgeons.**—In reply to a question, Mr. R. L. McKenzie said it was in the best interest of the farmers and stockowners generally to have a veterinary surgeon residing permanently at either Lameroo or Pinnaroo, because both districts carried a large number of stock, and there was no qualified veterinary surgeon nearer than the city. He thought a veterinary surgeon should be appointed by the Government, or the farmers and stockowners could provide a suitable guarantee by means of a levy on all the stock owned by members, and that the Government should subsidise the amount to cover the salary required for the services of a qualified man. **Mid-Season Wheats.**—In reply to a question as to what variety of mid-season wheat did best during the past three years, Mr. P. H. Jones replied that Yandilla King had yielded best over a period of years, but in his opinion it could not be classed as

a mid-season wheat. Major, Correll's, Turvey, and Early Burt had done very well. The varieties giving the smallest yields were Ordinary and Blue Federation, when sown under equal conditions with other varieties. Seeding Queries.—Mr. J. Scales was asked, "When cereals are sown while the ground is in a fit state to promote immediate germination, which is better, to follow immediately behind the drill with the harrows, or to delay the operation for a few days?" He replied that a great deal depended on the weather. If there were likely to be many weeds, he considered it advisable to wait for a few days after a rain. If drill harrows were used, it would be advisable to harrow again, especially after a good rain. When sown dry, he said it was more advisable to harrow the land after the rain. He also preferred to wait until the weeds had germinated before harrowing. Harrowing might also be done to advantage again when the wheat had sprouted, providing the weather was suitable. Growing and Feeding Barley.—Mr. P. J. Edwards thought that better results would be obtained from barley if it was sown after wheat. He had only sown barley once, the varieties being Chevalier and Cape. The former was a good sample, but the latter became badly infested with smut. He stated he had no experience in feeding barley to stock, but thought that by constructing mangers cheaply with short posts, through which wires were strained and old bags sown to them, large numbers of sheep could be fed economically on chaff and oats. Harrowing Growing Crops.—In reply to the question, "Is it advantageous to harrow and roll growing crops in this district, and at what stage of growth, and how many times?" Mr. H. Ledger replied that he had not tried that practice in that district, but he said it had proved advantageous in the more settled areas, and he thought it should be done in their district now that the land was becoming free from stumps. If a crop was rolled, small stumps, &c., would be rolled in, and so enable a better cut of hay to be obtained than was now the case. He thought one rolling, given when the wheat was from 3 in. to 6 in. high, should be sufficient. Lamb Raising.—Mr. M. Davis was asked, "Which is the most profitable lamb to breed in this district—the Merino, the crossbred, or any other type?" In answering such a question, he said, it had to be considered whether the lamb was to be marketed as a fat lamb, or kept to the stage of a hogget and shorn. He thought the crossbred lamb was the most profitable to breed, because it was born and matured during the spring of the year, when there was an abundance of feed, and the farmers were able to carry more stock. The crossbred realised good prices, and although the pure Merino was always saleable, it was very often starved or sacrificed in the lean time of the year, whereas the other lamb had been sold and a good profit realised. Adding Humus to the Soil.—Mr. H. G. Fewings, in reply to the question, "What means have you found to be the most economical to add humus to the soil?" replied that he had little experience in that matter, but the growing of green crops, such as peas, clovers, &c., which were ploughed in during the flowering stage, was the general practice in the older settlements. By the means of sheep, vegetable matter could also be converted into the most suitable state for adding humus to the soil, and was the most practical and economical method for their district.

COOMANDOOK, May 21st.—"The Selection and Management of Horses" was the title of a paper read by the Hon. Secretary (Mr. M. P. Wilkin), after which an interesting discussion followed.

GERANIUM, June 2nd.—Mr. R. C. Jacob delivered a lecture, "Pruning Operations," and during the lengthy discussion that followed replied to numerous questions.

HALIDON, April 4th.—Members discussed experiences during the past harvest. In picking seed wheat, both formalin and bluestone had been used. The majority of members favored bluestone on account of the lesser possibility of adulteration. A programme of meetings was also arranged.

LONE GUM AND MONASH, May 30th.—Forty-one members and three visitors attended the May meeting of the above Branch, which the Superintendent of Experimental Works (Mr. W. J. Spafford) attended and delivered an address,

"Manures." A further meeting was held at Mr. J. G. Potts's block on June 7th. A pruning demonstration was given to a gathering of 40 members and a large number of senior boys from the local school by the Horticultural Instructor (Mr. George Quinn).

MOOROOK, June 6th.—Two papers were read from the *Journal of Agriculture*:—"How to Make Meetings of the Bureau More Attractive." In the compilation of a programme of meetings, it was decided to include a "Homestead Meeting," and to have an "Orchard Competition," a prize being awarded for the best-kept orchard.

MURRAY BRIDGE, June 19th.—Mr. C. H. Beaumont (District Orchard Instructor and Inspector) attended the meeting, and gave pruning demonstrations at Long Flat and Murray Bridge. In the evening Mr. Beaumont delivered an address, in which he dealt with seasonal operations in the orchard.

PINNAROO, June 7th.—The Vice-Chairman of the Advisory Board (Captain S. A. White, C.M.B.O.U.) attended the meeting and delivered an address, "A Trip Across Australia," to a full attendance of members and a large number of visitors.

POMPOOTA, June 6th.—A short address on matters relating to the dairying industry and ailments of cows was given by the Chairman (Mr. N. Forester), and an interesting discussion ensued.

WINKIE, June 5th.—Twenty-two members and a large number of visitors attended a pruning demonstration given by the Horticultural Instructor (Mr. Geo. Quinn). In the evening an address, "Some Underlying Principles in Relation to the Pruning of Fruit Trees and Vines," was given by Mr. Quinn. The Hon. Secretary (Mr. F. W. Allan Bond) also presented a report of the work performed by the Branch during the past year.

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## SOUTH AND HILLS DISTRICT.

### BLACKHEATH.

May 26th.—Present: nine members and one visitor.

THE FOX PEST.—Mr. H. G. Pym contributed a paper on this subject. The fox, he said, was undoubtedly a pest, and was increasing in numbers at the present time, which would mean heavier losses to the flocks and poultry. The foxes killed an enormous number of rabbits throughout the year, but the man who endeavored to raise lambs in their and other districts had an uphill fight, which was mainly due to the havoc they created amongst lambs. To make certain of saving the lambs, a good deal of extra work was involved in yarding, &c., and unless the stock were being fed, they would be knocked about very considerably. That made lamb-raising a more expensive activity than it had been prior to the introduction of the fox. During 1914 there was a total of 349 million sheep in the world, but in 1922 the number had declined to 265 million, a decrease of 84 million. Australia had lost five million sheep during that period. There was a call to farmers to endeavor to restore the position. If the fox could be wiped out within a year or so, one step would have been made towards an increase in the flocks. On account of the crafty nature of the fox, it could not be destroyed with ease, and to the extent that one could destroy the rabbit. The most successful method of destroying foxes was by poisoning with strychnine. Mr. Pym thought that if a specified weck was set aside at a suitable season for all the landholders in the district to lay poison, it would have the effect of keeping the number of foxes down to a low figure. Different baits could be used, such as sparrows, parrots, and fish, and if the baits were dropped where a trail had been made, or around a dead sheep or other carcass where the pest

was plentiful, large numbers of foxes would be destroyed. In the case of young ones found in rabbit burrows, they could be destroyed with carbon bisulphide after all the holes leading from the burrow had been blocked. All strychnine baits that were not taken should be destroyed, in order to minimise the risk of their being picked up by dogs. A good discussion followed the reading of the paper.

#### CHERRY GARDENS (Average annual rainfall, 35.03in.).

June 26th.—Present: 13 members and two visitors.

BEE-KEEPING.—Mr. K. Jacobs, who contributed a paper under the title, "Bees as a Side Line," said in districts where there was an abundance of flowering shrubs and gum trees for the greater part of the year, bees could be kept successfully as a side line, provided the settler was prepared to devote some little care and attention to them. Serviceable and strong hives could be made with good petrol cases, but it was important that the hives should be made warm, and also waterproof. Another necessary point was the selection of a well-sheltered spot for the hives. When a swarm was to be hived, the hive should be placed on the ground and the bees carefully cut away from whatever substance they might be adhering to, and allowed to crawl into the mouth of the hive. The bees should not be disturbed until night, when the hive could be removed to the site that had been selected. It was advisable to place full sheets of foundation comb in the hives. If "starters" were used, the bees would have to be watched. A good plan to prevent irregular comb building was to take two full combs from another colony and place them in the new hive, with sufficient space between them for one slide with only a starter. The apiarist could then widen them out and continue placing starters between the full slides as they were built. If that practice were adopted, care should be taken not to proceed too rapidly, because there would in all probability be young bees in the combs, and if they were opened out too rapidly, loss from cold would result. For a hive made with petrol cases, nine frames would be quite sufficient for the bottom story. When the bees had built and filled these, the top story could be placed in position. As a rule the honey was taken from the top story, so that no more than eight frames should be used. If re-queening were necessary, the old queen should be killed and allowed to remain in the hive for a day or two, after which a frame containing new-laid eggs should be placed in the queenless hive. He did not think it advisable to commence extracting honey until the bees had drawn all the combs in the top story. The Hon. Secretary (Mr. A. R. Stone) then presented the annual report, which showed that during the past year 13 meetings had been held, with an average attendance of 11 members. The officers for the ensuing term were then elected, and a programme arranged.

#### CURRENCY CREEK.

May 4th.—Present: 10 members.

Mr. P. H. Plummer delivered an address, "Horses Suitable for Farm Work in this District," and an interesting discussion followed.

PIG RAISING AND FEEDING.—A further meeting was held on June 1st, when Mr. W. Saltmarsh contributed a paper on the above subject. If the district of Currency Creek was a district devoted solely to the growing of wheat, Mr. Saltmarsh said he would not venture to discuss pig breeding as a money-making industry. Little argument was required to prove that with the price of wheat in the vicinity of 5s. per bushel, and pollard costing 2s. 3d. for 2½lbs., and the price for pork on the wholesale English market at 7d. per lb., with landing charges 3d. per lb., the farmer would need a large banking account to be able to withstand the drain on the farm. In the Southern districts the majority of landholders had to resort to mixed farming, and from that aspect he had no hesitation in recommending pig breeding as a necessity on the farm. In the first place, the pig

was one of the best means of converting waste products into cash, and required less attention than any other domesticated animal. He was strongly of the opinion that the pigs should be provided with a bath, which could easily be made, and supplied with water where a plentiful supply was available. If the bath was built with sloping sides, it could be flushed out frequently and kept sweet and clean. Where breeding was adopted, it was always advisable to use a pure-bred sire, and he favored the Berkshire. The breed was one which was well disseminated throughout the State, and breeders should have no difficulty in obtaining animals to maintain the type and size of the pigs. The breeding sow should be fairly fat when farrowing, because a good milker would rapidly lose condition whilst rearing a litter. The sow if well nourished could be put to the boar at five months old. The young pigs should be early encouraged to drink, by providing them with a shallow dish or trough which was easily accessible, and feeding them with milk. That would relieve the sow to a considerable extent and enable the young pigs to be weaned much earlier than would otherwise be the case. If satisfactory progress had been made, the young pigs could be weaned at the age of six weeks or seven weeks, and the mother could be put on a diet of finely crushed meal and skim milk. If it was decided to fatten her for pork, she could be given the best of grain and meals until ready for market. If the young pigs had been reared with the object of turning them over to a bacon factory, they should be given a good growing ration, such as two feeds of grain and slops daily, and the run of a plot of lucerne. Where an engine was used on the farm, all grain should be gristed before being fed to the pigs. If fed to young pigs the grain should be thoroughly soaked or steamed. Regularity in feeding was a most important factor in the successful fattening of pigs. In the discussion that followed Mr. G. Ritchie considered that the pigs should be provided with a paddock for exercise and only yarded when being topped up for market. He considered the Berkshire-Essex cross the best breed of pigs for that district. Mr. D. Kemp considered that five months was too early an age at which to mate the sow. The writer advocated castration of the pigs at the age of four weeks.

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HARTLEY (Average annual rainfall, 15in. to 16in.).

May 30th.—Present: six members.

FARM MANAGEMENT.—In the course of a short paper under the heading "General Care of the Farm," Mr. H. S. Stanton first referred to the implements and machines. These, he said, should be overhauled immediately they had finished work for the season. Leather belts and traces should be oiled at least once during the year, and it was advisable to release the tension of the springs on the cultivators, harvesters, and drills. When that work had been completed the machines should be housed in a shed with a straw roof. The fences should be kept in good order. Loose wires lying on the ground were a constant danger to stock. When the team was only doing light work, he suggested feeding long hay, but during the busy seasons of the year chaff should be used. Grooming and the provision of dry beds for the horses when the stable yard was wet were points that were too often neglected by young farmers. The best preventive of sore shoulders he considered to be a good fitting collar. An interesting discussion followed, in which the majority of members spoke in favor of the shed being roofed with iron.

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MORPHETT VALE (Average annual rainfall, 23.32in.).

May 24th.—Present: 18 members.

THE FARM TRACTOR.—"It is strange that with all the improvements that have been made in farm machinery, the motive power for it is still flesh and blood, and whilst it is certain that the horse will always be necessary on the farm, its use as a means for power will gradually diminish," said Mr. A. F. Furniss, in a paper under the above heading. Continuing, the speaker said many farmers

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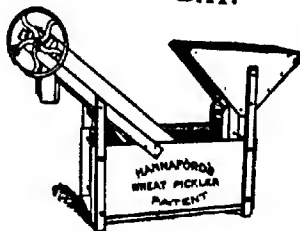
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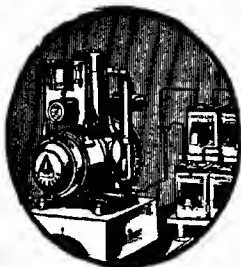
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in the sister States were using tractors, and it was reasonable to suppose that, on the whole, the engines were working satisfactorily. The paper concluded with a reference to the function of the Roseworthy Agricultural College, and expressed the opinion that the students should receive thorough instruction in the management and repair of the tractor.

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PORT ELLIOT (Average annual rainfall, 20.33in.).

May 19th.—Present: five members.

MECHANICAL TRANSPORT V. HORSE TEAMS.—Mr. W. Green, who contributed a paper dealing with this subject, first referred to the time when bullock teams were used for carting produce to the farms from the city. Subsequently horse teams were adopted by the farmer for that work, but those were slowly but surely giving way to mechanical means of transport. For speedy delivery, he considered the motor truck to be a most useful adjunct to the farm, and had found the cost to be considerably less than that incurred by horse teams. The motor truck was also more convenient, especially during the cold winter nights, for on reaching home the farmer did not have to attend to a large team; all that was necessary was simply to drive the truck into the shed. The farmer and the gardeners should derive as many benefits as possible from such an improved method of transport. The provision of electric light, telephones, and means of motor transport, would, to a great extent, be a means of solving the boy-on-the-farm problem, because the drudgery associated with work on the farm made the boy dissatisfied with his surroundings. The tractor as a means of cultivating the soil, and harvesting the crops was past the experimental stages, and he believed it would, in a few years, be universally adopted.

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PORT ELLIOT (Average annual rainfall, 20.33in.).

June 16th.—Present: five members.

WINTERING BEES.—In the course of a short paper dealing with this subject, Mr. A. J. Gregory said one of the most important points in beekeeping was the care of the bees through the cold winter months. A warm spot, sheltered from wind, with a gradual slope towards the east, on deep sandy soil, so that the rain would soak away quickly, should be selected for the winter quarters of the bees. The apiarist should, if possible, avoid standing the hives under trees. He preferred low bush country. A patch of low bush country, sufficiently large to accommodate the hives should be cleared, and the site should, if possible, be bounded on the southern and western sides with a good break of growing timber, to protect the hives from cold winds. The entrance to the hives should face the east or north-east, and should be lower by a couple of inches than the back of the hive, so that the bees could easily draw out any refuse and keep the hives in a clean condition. Special attention should be paid to the covers of the hives, to see that they were not leaky. The combs should be spaced evenly apart, and each hive provided with a mat to cover the combs. Sufficient honey should be provided to carry the bees through the winter, and if there were not sufficient bees to cover the combs in the honey super, it should be removed, and the bees confined to the brood chamber. No attempt should be made to interfere with the bees during June or July. If the weather was fine during August and September, the hives could be examined, and each comb lifted out carefully, in order to ascertain if the queen were laying or if she had brood in the combs. Any comb that was without brood, but which contained honey, should be put through the extractor before being returned to the hive. If that were done, the colonies of bees should be healthy and strong by the end of September.

## RAPID BAY.

June 2nd.—Present: 18 members.

**CARE AND MANAGEMENT OF HORSES.**—Mr. Alf. Hamlyn contributed a paper on this subject. Many horses were ruined for life, he said, by overwork during the breaking-in process, and he impressed on members the necessity for only light work being given the colt at first, and then gradually working it until it could take its full share of the work of the team. By so doing the shoulders of the colt would gradually harden, and the muscles would develop more evenly. One of the first essentials for working horses was the regular feeding of good whole-hay, and a sheaf of long hay for the last feed at night. Where possible, a couple of double handfuls of bran, and the same of crushed oats for each horse each day should be given with the chaff, not forgetting a couple of packets of Epsom salts once a week, which would tend to keep the horse in a healthy working condition. He preferred watering the horses before feeding, for which good clean water was essential. He was a firm believer in grooming, because it cleansed the skin, and greatly improved the coat and appearance of the horse, and assisted the animal in the performance of its daily work. The stables should be cleaned out regularly, because it was necessary for the health and comfort of the horse, and as a preventive to foot trouble. Rotten frogs in the feet of the horses were often caused by allowing the animals to stand in filthy stables, which were a harbor for maggots and flies. Well-fitting collars would enable the teamster to get the best results from the team and they also acted as a preventive to sore shoulders. A good wash for scalded shoulders was a weak solution of saltpetre and water applied immediately the collar had been removed. Another good plan was to dust the shoulders with sulphur if the horse was sweating whilst at work. If possible, the horses should always be matched for team work. To prevent undue injury to the horses when turning, the team should be stopped, and educated to turn quietly. Permanent harm was often done to the coronets of the horses by allowing them to rush around when turning; especially was that so where large teams were worked abreast. The team should never be left whilst working in the paddock or elsewhere without being secured, because once the team had bolted, they would not forget it, and a bolting team often resulted in permanent or fatal injuries to one or more of the animals. The whip should be used with discretion, but a well-fed and well-cared-for team should not require a whip to obtain the best results. On no account should horses be punished by hitting them over the head. The temperament of each individual horse should be studied. The reins and chains should be in good repair. When working several horses abreast he preferred double reins, because they gave better control, and relieved the outside horses of undue strain on the mouth. He recommended unharnessing horses fed in the stable at midday, because it gave rest and comfort to the animals and was a preventive to accidents. When one saw horses trying to feed with the harness attached, that was a sure sign of carelessness and laziness on the part of the driver. If a day of heavy work was required from the team, the animals should not be rushed in the early morning. Horses worked better after they had been going for some little time, and if extra pace was required, the afternoon was the best time to hurry the team along. Employment for a wet day could be found in greasing the harness with a mixture of melted mutton fat and neatsfoot oil. During the discussion that followed, several questions were answered by Mr. Hamlyn.

## ROCKWOOD.

May 28th.—Present: 11 members.

**POTATO GROWING.**—The following paper, under the heading, "Potato Growing on Swampy Land," was contributed by Mr. T. H. Langley:—"Work the land thoroughly and apply liberal dressings of manure. For the potato crop I recommend ploughing the land about 5in. deep, harrow and roll it well, and when planting the seed, plough the soil about 3½in. to 4in. deep, in order to leave a



little worked soil under the sets. The ground should be well watered before planting, but it should be allowed to dry sufficiently near the surface, so that the moisture will not rot the sets. On no account must the sets be planted immediately after flooding the ground. When preparing sets, one strong eye is quite sufficient, but if the potatoes have shot and been broken back many times, cut larger sets. I have found Snowflakes, Up-to-dates, Carmens, and Pink-eyes the heaviest yielding varieties on swampy land. When planting Up-to-dates, Carmens, and Pink-eyes, the sets should be planted about 15in. apart and 2ft. between the rows; but Snowflakes require a little more growing space, because the growth of this variety is larger than that of others. Should the ground be very weedy by the time the potatoes are through, I have found it advisable to run a light set of harrows over the ground. This does not harm the potatoes, and destroys many of the troublesome weeds. When the plants are 9in. to 12in. in height, they must be 'earthed up.' The reason for 'earthing up' the potato is to hold the moisture around the plant and protect it from worms. The weeding of the potatoes depends largely on the condition of the ground. The growth of the weeds on swampy soils is so rapid that should the potatoes not be thoroughly weeded, the growth of the weeds will kill the potato. On the class of land that I have to crop, I weed between the rows once with a horse cultivator, and once between the plants with a hoe, and then 'earth' the plants up. Should the potatoes be affected with disease, do not use the same seed, or plant the crop on the same ground during the next season." In the discussion that followed, Mr. J. Bradford said he had found potato growing hard work, and a fight with worms and disease, although when the crop was sown on new ground he had found the potatoes free from worms. Mr. L. Neighbour preferred round seed for sets, because round seed was more economical and produced just as good a crop. He agreed that it was not advisable to sow diseased seed, and preferred selecting seed from another locality. Mr. E. R. Heath found wire worms very troublesome. If land was suitable, he thought it would pay to grow more potatoes, especially in that district. Mr. S. Collett had grown potatoes with good results. "Circular Heads" were once a good variety, but he had not seen any for several years. Potatoes and beans grown alternately would assist each other. Mr. L. Heath favored harrowing potatoes after they were up several inches. He obtained best results from Up-to-dates and Pink-eyes, and preferred cut seed. Mr. E. Hodgson had proved Bismarks to be a good variety. He had also been troubled with wire worms, except when the crop had been grown on new land.

#### ROCKWOOD.

June 25th.—Present: 21 members and visitors.

**TRACTOR v. HORSES.**—In the course of a paper dealing with this subject, Mr. H. T. Stacey expressed the opinion that the farmer who used a tractor would not be able entirely to dispense with horses. It would be profitable, he thought, where a team of 10 or 12 horses was engaged, to sell six horses. The following figures of expenses in connection with the tractor were quoted:—Interest on £550 (price of tractor), at 6 per cent., £33; ploughing 400 acres each year, including oil and fuel consumption, £40; depreciation in value for one year, £30; repairs and renewals per year, £15—total £118. His tractor had been able to plough about 1½ acres an hour with a four-furrow plough. He had found that it was not advisable to overload the tractor in light soil, because of the tendency to slip and "dig in." The better plan was to travel faster on a higher gear, rather than to make the work heavy and travel at a slow pace. On hard land the tractor was able to do heavy work quite comfortably. The tractor of medium weight was able to travel fast, and when pulling a light load it could be driven up hill without changing gears. The cost of employing horses he considered to be as follows:—Chaff for six horses to plough 400 acres at 5 tons per horse, with chaff at £4 per ton, £120; paddocking for 26 weeks at 2s. per horse, £15 12s.; interest on cost of harness and gear (£160), at 6 per cent., £9 6s.; death of

## AGRICULTURAL PUBLICATIONS.

The following publications have been issued and are available for distribution at prices mentioned:—

- "First Aid to the Horse," by F. E. Place, B.V.Sc., M.R.C.V.S., &c.; price, 3s.; posted, 3s. 2d.  
 "Fruit Tree and Grape Vine Pruning," by Geo. Quinn; price, 3s. 6d.; posted, 4s. 3d.  
 "Poultry Manual," by D. F. Laurie; price, 1s. 3d.; posted, 1s. 5d.  
 "Vinegrower's Manual," by A. Sutherland (1892); price, 6d.; posted, 7d.

Journal of the Department of Agriculture, 1s. per annum in advance; 3d. per single copy to residents in South Australia. Other places, 2s. 6d. per annum; single copies, 6d. each.  
 The following bulletins and leaflets may be obtained by residents of South Australia by sending a 1d. stamp for postage of each copy required; other places, 3d. each:—

All communications must be addressed—Editor, "Journal of Agriculture," Victoria Square, Adelaide.

Subject.	Bulletin No.	Subject.	Bulletin No.
ANDREW, H. W., Botanical Assistant— Seeds Imported from Abroad into S.A. ....	109	PLACE, F. E., B.V.Sc., M.R.C.V.S., M.R.A.S.E.— Bloodworms .....	LXV.
BAUMONT, CHAS. H.— Orchards and Orchard Work .....	143	Bot Flies and Bots .....	LXVI.
BULL, L. B., D.V.Sc.— Forage Poisoning .....	167	Cow, Some Common Troubles of the .....	189
COLEBATCH, W. J., B.Sc. (Agric.), M.R.C.V.S.— Barrenness in Livestock .....	XLVIII.	Diet Deficiency and Disease in Live Stock .....	77
Conversion of Fodder Crops into Silage .....	LXVII.	General Management of Draught Horses .....	182
Dietetic Value of Cereals and their Products .....	155	on the Average Farm, Notes on .....	188
Field Pease, Production and Utilisation of .....	140	Horse, The, General Management, &c. ....	85
Pigs, General Management and Breeding of .....	141	Medicine Shelf, The .....	XXXIII.
Roseworthy Agricultural College—Harvest Report— 1914-15 .....	90	Milk Fever or Drop after Calving .....	LIV.
1916-17 .....	114	Some Sheep Worms .....	98
1918-19 .....	123	QUINN, GEO., Horticultural Instructor, &c.— Apple Packing .....	XIV.
1919-20 .....	133	Codlin Moth, The .....	169
HODGE, C. P.— Hints for Settlers Starting in Mallee Lands .....	—	Cotton Trials at Berri .....	70
LOXTON, C. A., B.V.Sc., Government Veterinary Surgeon— Diagnosis of Disease in Farm Animals .....	133	Fruit Trees and Vines, Remedies for Diseases of .....	145
PERKINS, Prof. ARTHUR J., Director of Agriculture— Agricultural Education in South Australia .....	154	Olive Growing, Notes on .....	107
Ayers and Hanson, Possible Improvements in Farming Practices of Hundreds of .....	95	Orange in South Australia .....	91
Black Japanese Millet on Reclaimed Murray Swamps .....	XLII.	Select List of Fruit Trees, &c. ....	LIII.
Dairy Cattle, Suggested Rations for .....	XXI.	Table Grapes .....	—
Ensilage, Use and Making .....	146	SPAFFORD, W. J., Superintendent Experimental Work— Ensilage, Its Manufacture and Use .....	128
Farm Horses, Suggested Rations for .....	XXII.	Experimental Farm Harvest Reports— 1916-17 .....	119
Farm Livestock, How to Lay Foundations of Good Strains .....	XXI.	1917-18 .....	124
Forage Crops in the South-East .....	92	1918-19 .....	129
Livestock, Duties of Farmers as Reared for the State .....	116	1919-20 .....	153
Livestock Foodstuffs and Feeding Rations, Equivalence of .....	102	1920-21 .....	157
Manures in their Relation to Present Day S.A. Farming .....	148	1921-22 .....	165
Manuring of South-Eastern Pasture Lands .....	122	Fertilizers for the Home Garden .....	169
National Aspects of Guaranteed Minimum Price for Wheat .....	121	Fodder Crops on Reclaimed Swamp Lands .....	127
Phosphatic Manures .....	87	Pls Raising where Lucerne can be Successfully Grown in S.A. ....	149
Pls. Feeding Tests with .....	163	Soils and their Management .....	162
Pls. A Neglected Source of National Wealth .....	164	Wheat Crops—Some Diseases of, and their Treatment .....	110
Possibilities of Increased Production in our Rural Industries .....	126	Wheat, Cross Fertilization of .....	XLIII.
Rise and Progress of the Fruitgrowing Areas of the Murray .....	168	GENERAL AND REPRINTS— Beekeeping Notes—Foul Brood: Its Symptoms and Treatment .....	XIII.
Roseworthy Agricultural College— Harvest Report, 1910 .....	63	Berri Experimental Orchard, Second Report .....	147
Harvest Report, 1912-13 .....	78	Dry Farming Conference, 1911, Report .....	I.
Harvest Report, 1913-14 .....	83	Fruit Nomenclature .....	XLIX.
Fourth Report, Permanent Experimental Field, 1909-10 .....	65	Congress, Agricultural Bureau, 1911 .....	66
Fifth Report, Permanent Experimental Field, 1905-14 .....	89	Congress, Agricultural Bureau, 1914 .....	86
Rotation of Crops, 1916 .....	100	Herd Testing Societies, Regulations .....	137
Rotation of Crops, 1919 .....	125	Hints to New Settlers on Irrigation Areas .....	99
Training and Research .....	115	Milking of Cows .....	VI.
		Ostrich, The .....	XXX.
		River Murray Herd Testing Association, Second Report .....	71.
		Sheep Tick and Sheep Louse .....	84
		Spaying of Cows .....	IV.
		Tobacco, Growing and Curling .....	159
		CONFERENCE REPORTS— Eyre Peninsula District, 1920 .....	158
		Hills District, 1920 .....	152
		Lower Northern District, 1920 .....	142
		Lower Northern District, 1921 .....	156
		Mid-Northern District, 1920 .....	134
		Mid-Northern District, 1921 .....	161
		Murray Lands District, 1920 .....	151
		River Murray District, 1920 .....	144
		River Murray District .....	165
		South-Eastern District, 1920 .....	155

THE AGRICULTURAL BUREAU.—Particulars of this Organization, of which every farmer should be a member, can be had on application to the Department.

horses, depreciation, men's overtime feeding horses, 200 days, at 3s. per day, £30—total £189 18s., showing a total of £71 18s. in favor of the tractor. Mr. Stacey stated that he intended doing most of the cropping with the tractor, and when favorable conditions prevailed it was his intention to attach a light to the tractor and work at night. One hour each morning was all that was required to prepare the tractor for a day's work. He felt certain that he could go to the tractor at 8 o'clock, prepare it for work, and knock off at 4 o'clock in the afternoon, and then have done more in that time than a man with six horses.

**THE TRACTOR.**—The following paper, under the title, "Observations and Data Collected with One Season's Work on a Tractor," was read by Mr. A. M. Wilkins:—"Many farmers are at present giving the subject, 'Tractor power versus horse power on the farm,' a good deal of thought. In presenting this paper to-night I feel that it may be necessary to qualify my statements; I may either find defects in tractor work, or greater advantages than are at present apparent. The area of ground covered has been:—Ploughing with a 10-disc, approximately 600 acres; cultivating 300 acres with a 25-tine spring-tooth cultivator. With the former the tractor is taken on second gear at the rate of, approximately, three miles an hour, and with the cultivator, on first gear, at the rate of, approximately, six miles per hour. Tractor work being new to me, I wished to find out as near as possible, the cost of running expenses. I made careful tests on various classes of land, and in doing so made no special efforts, either in relation to the area covered or the fuel consumption. Special efforts are quite all right for advertising purposes, but what the farmer is interested in is work done under normal conditions. In giving the figures, I do so, not to boom any particular make of tractor, but as perhaps a small help to those who have this matter under consideration. Details of the tests are as follows—Test No. 1.—100 acres of rough, stumpy scrub land was ploughed in a very dry state. The soil was of rather a light nature, 50 per cent. being sandy. The kerosine consumption was 68galls., oil 4½galls., benzine 3pts., grease 3lbs., water approximately 1pt. to every 10 hours' work (on smooth going the water consumption does not amount to this). The time involved was six days of, approximately, 10 hours. This piece of land is situated about three miles from the homestead, and a horse was used to go to and from work and to take out kerosine, &c. The costs were as follow:—Kerosine, £5 10s. 6d.; oil, £1 8s. 2d.; benzine, 1s. 2d.; grease, 1s.; 2cwt. of chaff for horse, at £4 per ton, 8s.; driver's wages, 6 days at 7s. per day, £2 2s.; driver's keep, £1; total, £10 10s. 10d., or a little over 2s. per acre. By way of comparison, this same piece of land was worked last year, with the same plough and a team of nine horses. The land was in much the same condition. The horses had just come in from a long rest and were in very good condition. The time taken in ploughing was 10 days. As one Sunday would intervene, the horses had to be fed 11 days. The cost of same (allowing 3cwt. hay per day for nine horses), 33cwt., at £4 per ton, was £6 12s.; driver's wages, 6s. per day, £3 6s.; driver's keep, £1 12s.; total, £11 10s. This showed a slight balance in favor of the tractor. The distance from home in this case was in favor of the tractor, but the freshness of the team would about balance this, because I have found from long experience that about 10 acres over a good amount of land is a fair average for the horse team. Test No. 2.—This was conducted on 68 acres of heavy land, including some very steep climbs from the river frontage. The land was of an ugly, three-cornered shape, causing a lot of extra turning. This land had been lightly ploughed in November last. On the test taken it was ploughed again to a depth of 4in. in May. The kerosine consumption was 57galls., oil 2½galls., benzine ½pt., grease 1lb., time 35½hrs. This, on the same price for kerosine, oil, wages, &c., works out at a little under 2s. No horse feed was used, the tractor being brought in at night. Test No. 3.—This consisted of cultivating the above 68 acres of land with the 25-tine cultivator. The kerosine consumption was 27galls., oil 1½galls., benzine 1 tablespoonful, grease ½lb., time 15½ hours. The cultivator was taken on first gear and a wider cut could have been taken with ease, which would have shown a saving on these figures. (I may state that we have been in the habit of working six or seven horses in this cultivator, and the average day's work was, approximately, 20 acres.) This worked out at about 11d. per acre. Either by adjusting the carburettor or increasing the load this could have been improved upon. The times given in all tests were from starting until the

stopping of the tractor for the day. Any time lost either in oiling the plough, giving attention to either cultivator or tractor were counted as working hours. In arriving at the average cost of ploughing, &c., it is hard to give an estimate unless one is familiar with the class of land involved, because much depends on the condition of the soil, class of same, &c. As with a motor car, if the going is extra heavy, the fuel consumption increases; if light, a corresponding decrease takes place. I estimate that from 2s. to 2s. 3d. should cover the ploughing cost in any class of land. One of the points that all farmers should take into consideration is the upkeep of the machine. This is more to be considered than the first purchase price. Any tractor or machine that is costly in upkeep does not appeal to a shrewd man. Apart from the cost of repairs, it so quickly depreciates in value from a selling point of view. I feel that my experience has been too short to give any very definite information in regard to this. Before having used a tractor, I heard many rumors as to the big outlay involved in keeping these machines in order. So far as my experience goes, I do not think that this should be the case. The working parts of the engine and transmission are so very carefully protected from dust that, to my mind, nothing short of sheer carelessness in the matter of good, clean, and sufficient lubrication would cause excessive wear. I have carefully examined all bearings after the season's work, and as far as I can find, there is no apparent wear, except on the track pins. These, of course, are not protected from the dust, sand, &c. Much of our work has been under trying conditions, either in very dry sand or patches of mud and water have had to be passed through. Either would cause a certain amount of extra wear, as in the first oil would increase the wear, and in the latter the muddy water soon destroys the oil as a lubricant. We have covered 900 acres, and, as far as I can judge, the pins will do about 1,500 acres. The cost of replacement is only a few pounds. As regards the track itself, that shows no wear, and I see no reason why its life should not, under ordinary conditions, be as long as other parts of the tractor. In regard to scrub rolling, it only took a few rounds to convince any practical man that the tractor was very much at home in work of this class. A few points that impress themselves very forcibly on me in regard to the tractor are that when your land is in good condition, you can push on very quickly with the work and take advantage of the conditions. How often many of us, after getting our fallow in excellent condition for receiving the seed, have seen our season's work spoiled to the extent of several bushels to the acre by excessive wet. Had we been able to rush the work through we would have had an even return. I would say to any farmer who contemplates buying a tractor, do not do so with the idea of going on in the wet weather. You can do this; but rather have your mind made up that when conditions are favorable, you will have seed and super in readiness, and, as the old saying goes, 'Make hay while the sun shines.' You can do this without unduly tiring yourself. The handling of a tractor is a very easy job indeed, apart from the knowledge necessary to keep same in good order, and this does not take more than the knowledge necessary to get good results from any engine. On almost every up-to-date farm there is at least one who has sufficient knowledge of engines to do this. I feel sure any farm hand would much prefer sitting on a comfortable spring seat for a few hours extra, to urging on a tired team; for no matter how good a team one may possess, they will tire with long, continuous work. Where is the farmer who has not, at times, felt that he would like to put the plough or cultivator in a little deeper; but consideration for his team prevents him doing so? This is not so with the tractor. If you do not overload, you can go to the depth you wish. I favor putting on a nice comfortable load, neither to underload or overload. I believe in this way the most economical results are obtained. I would say to every farmer, do not buy a tractor under the capacity of the job you require of it; your tendency will be to increase the amount of work done; if you buy with a little reserve power you allow for this. Another point in favor of the tractor in a season like the present, where much delay has been caused by excessive wet, you simply close the throttle, and it needs no more attention until the land is again fit; but the horse team must be kept up to concert pitch if the animals are to do good work when needed again. There is no need for an engine, apart from the tractor, for chaffcutting; the power pulley will do this; or, if one combines irrigation with other work, the tractor can be used, and its ability to go over wet land without bogging or unduly packing the

soil makes it very suitable when a number of pumping sites are used. I believe there are several good makes of tractors on the market, and before deciding on any particular make, I would say to my fellow-farmers, study the question well and make sure that the make you decide upon can handle your soil, in the many different conditions that will be presented to you, and to obtain the best results from any make, impress on your driver, 'Lubrication,' and again, 'Lubrication.' Mr. H. C. Hodgson then read a short paper. He thought that for a small farm the tractor might be worked more cheaply than a team of horses, but for a young man just making a start he was of the opinion that more satisfaction would be obtained with horse power for working the land. A lengthy discussion followed the reading of the papers. Mr. A. Henley considered that the day of the tractor for farm work had arrived; but there was one disadvantage against the universal adoption of the tractor, and that was that fuel had to be obtained from overseas, which necessitated the expenditure of capital to outside countries. The tractor would also mean that less labor would be required, and a certain number of men would be bound to be thrown out of employment. With the horse team everything required to work them could be produced on the farm. Mr. E. Heath favored the tractor. The machines were only in their infancy, and there was no doubt that many improvements would be made in the near future. In the case of a young man who favored horses making a start on a holding, it would be necessary for him to purchase a team of eight horses, erect stables, and sheds for chaff, &c., whilst a tractor would only cost from £300 to £700. The land required for grazing the horses could be more profitably utilised by grazing sheep, of which six could be kept where one horse grazed. Mr. Steed was of the opinion that a farmer who only cropped 600 acres could not profitably invest in a tractor. Mr. L. Tucker favored the tractor, but he believed it would not be advisable to discard the horses altogether. Several other members discussed the papers, the majority expressing a preference for the tractor.

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ASHBOURNE, May 28th.—Seven members attended the monthly meeting, when a paper, "Blacksmithing on the Farm," was contributed by Mr. F. Allingame. A programme for the ensuing year was also arranged.

BALHANNAH, June 1st.—Mr. E. Leishman (Orchard Instructor and Inspector for the Hills Districts) read a paper, "Pruning," and an excellent discussion ensued.

KANGARILLA, May 25th.—Mr. R. Fowler (Manager of the Blackwood Experimental Orchard) attended the meeting, and addressed the members on the work being carried out at the Blackwood Experimental Orchard. He also dealt with the most suitable varieties of peaches for canning. The cause of fruit trees dying was also discussed. It was stated that young trees should be planted at the same depth as when taken from the nursery.

LONGWOOD, May 26th.—The monthly meeting of the Branch was held at the homestead of the Hon. Secretary (Mr. J. E. Coles). The afternoon was devoted to an instructive pruning demonstration. After tea, provided by Mrs. Coles, had been partaken of, the Hon. Secretary presented the annual report. A number of interesting and well-attended meetings had been held during the year, and profitable discussions entered into.

McGILLIVRAY, May 29th.—Mr. W. Wehlack contributed a short paper, "Prevention of Bush Fires," in which he contended that if neighboring farmers were to co-operate during the time set aside for burning scrub, very few fires would get out of control, and the danger of damaging settlers' property would be considerably reduced.

SHOAL BAY, May 29th.—The Chairman (Mr. H. Noske) delivered an address, "Topdressing of Pastures," and a good discussion followed.

## SOUTH-EAST DISTRICT.

## ALLANDALE EAST.

June 22nd.—Present: 15 members.

**SAND IN HORSES.**—Mr. S. H. Butler read extracts from the Departmental Bulletin, "Sand in Horses," and in the discussion that followed Mr. W. Laslett said he had found treacle and milk a good cure for horses troubled with sand. Mr. C. Griffin noticed that horses scoured when they had sand, especially when they commenced work after a long spell, which he considered assisted in passing the sand out of the horses. Mr. Laslett did not recommend the use of a drench unless the horses were very bad. Mr. A. Yateman had found coffee an effective remedy. Mr. A. Kieslebach suggested giving the horses three or four packets of salts each week. Mr. Butler thought each horse should have half a packet of salts mixed with the feed each day.

## KYBYBOLITE (Average annual rainfall, 22in.).

May 24th.—Present: 10 members and three visitors.

Mr. W. J. Spafford (Superintendent of Experimental Work) attended the meeting and gave an instructive address, "The Improvement of Pastures," dealing principally with the seeding, manuring, feeding, and harvesting of Subterranean clover. In the short discussion which followed, Mr. A. E. Cother advocated the assistance of native grasses, instead of cultivating imported fodders. Mr. Spafford stated that once the land had been cultivated, the natural grasses took too long to recover their natural quantity, and they were forced to use the introduced article to secure a good supply of herbage. Mr. S. Shepherd spoke at length on the suitability and success of Subterranean clover on Kybybolite soils; he also said that the natural grasses would recover more quickly after cultivation if lucerne was grown with a crop of wheat.

## MOUNT GAMBIER (Average annual rainfall, 32in.).

June 9th.

**LUNGWORMS IN SHEEP.**—The following paper was read by Mr. R. McCormick:—"It may seem to the ordinary observer that there is no immediate connection between lice, flies, and other external parasites of stock and those which infest the inside of the body, such as lungworm, tapeworm, &c.; but modern science has proved that the connection is a very real one, so that dipping, which is so emphatically recommended, is a very sure way of reducing the troubles caused by internal worms. The lambs or hoggets affected with lungworm are known to most sheepmen on wet country, but it is by no means such country alone that is infected. Animals harboring the worms may be found in some of the driest areas of Australia, but it must be admitted that the cold wet country is a most conducive factor to the trouble that arises from such worms. Lambs or hoggets are far more liable to be affected than older sheep, and generally by a brownish, thread-like worm, which lives chiefly in the air passages of the lungs, and causes bronchitis, while older sheep often develop inflammation of the lungs from the visitation of another species, white and threadlike, which, however, is also quite common in lambs. The symptoms are as follow:—After the heat of summer is over, and nights are getting colder, or drier, the majority of the flock will begin to fall off in condition and develop a husky cough, especially when disturbed. Their ears hang, and their general appearance is a dejected air, while after a fit of coughing rosey saliva will hang from the jaws. They will often scour badly, but this is generally due to a complication, and is not an essential symptom. While weakening, the lambs will often graze on their knees, and a symptom which is at once apparent is the sinking of the eyes in their sockets.

It is quite likely that other diseases will exist in conjunction with worms, because any weakening disease is favorable to the development of lungworms, and flukes may often be found in the liver, or tapeworms in the bowels. It may be a splitting of straws to decide whether the lungworms have caused death, or whether some other parasite has been responsible. From a practical point of view this does not matter much, because treatment for one will be helpful in getting rid of another. All authorities agree that the embryo worm finds its way into the system through the mouth, but there is a divergence of opinion as to what happens then—whether the young worms pass from the food in the throat to the air pipes, or whether they find their way into the lungs by wriggling up the gullet, and then into the air pipes. A very practical hint for prevention is thereby obtained, namely, that immature, delicate worms may be attacked more satisfactorily in the stomach or blood than the more resistant ones in the air passages. On this account licks containing brine are as equally useful in fighting this trouble, as that of parasitism of the digestive tract; they form a first line of defence, and sulphate of iron or copper may be added up to two or three per cent. of their weight with considerable benefit, except that the astringent taste of such salts often causes young sheep to neglect the licks. The immature worms are, however, extremely susceptible to arsenic in quantities that are safe medicinal doses for the sheep, and which act as a tonic on the animal. The drug, too, is chemically very active, and is rapidly passed into the circulation, added to which it has the advantage of being easily given in liquid or pellet form, either of which are commonly used for the stomach and bowel worms, and prove equally effectual, if not more so, for lungworms. Perhaps the most important factor to remember is the resistance of the worms to drought conditions, and the absolute necessity for cleaning infected pastures." In the discussion that followed, Mr. D. A. Collins said the best preventive of stomach worms was to keep the sheep in good condition, so that they would be able to resist the ravages of the parasites. He had made it a practice of turning the weaned lambs into green fodder, preferably rape, which was accounted a first-class preventive of the worms. Immediately symptoms of lungworm were noticed, the animals should be drenched, so that the parasitical hosts should not be given an opportunity to develop. A suitable lick was also useful as a remedy in combating the disease. Mr. J. Buck said he had been troubled with worms while farming at Naracoorte, but he had not met with the same difficulty at Moorak. There he had found the animals retrograded in condition immediately after shearing, and upon a post-mortem examination being performed, a small worm was found in the bowels. Last year he turned out lambs upon oaten stubble with excellent results. Mr. G. Gurry agreed that the frequent changing of paddocks in order to maintain the sheep in good health was one of the surest means of combating worms. Many people had found that kerosene as a drench was much more effective than many of the patent drenches placed on the market. Mr. J. Keegan, in dealing with the life history of the stomach worm, said either burning or cultivation had the effect of destroying the nucleus of the worm. The parasites grew to maturity in the intestines of the sheep, and were passed out to enter again in conjunction with fodder. Outside the carcass the worms never exceeded one-thirtieth of an inch in length, but within the body they attained the length of about 2 in. The reason why lambs succumbed to the complaint more readily than matured sheep was that they were less able to withstand the ravages of the worm than grown animals. Copper sulphate in solution was a most effective drench, but caution should be observed in regard to the strength. One or two animals should be drenched before the whole flock was treated. The best means of dealing with lungworm was a hypodermic injection of chloroform and turpentine.

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NARACOORTE (Average annual rainfall, 22.60 in.).

May 12th.—Present: seven members.

PESTS AND HOW TO DEAL WITH THEM.—Mr. W. W. Gould contributed a paper on this subject. Rabbits, he said, were the worst pest for the man on the land, because they ate the best of the grass or crop. If there were no rabbits, he











